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LTE;
Mission Critical (MC) services over LTE;
Part 2: Mission Critical Push To Talk (MCPTT)
User Equipment (UE) Protocol conformance specification
(3GPP TS 36.579-2 version 15.7.0 Release 15)



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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
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In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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The present document is part 2 of a multi-part deliverable covering conformance test specification for Mission Critical Services over LTE consisting of:

3GPP TS 36.579-1 [2]: "Mission Critical (MC) services over LTE; Part 1: Common test environment"

3GPP TS 36.579-2: "Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification" (the present document);

3GPP TS 36.579-3 [3]: "Mission Critical (MC) services over LTE; Part 3: Mission Critical Push To Talk (MCPTT) Server Application conformance specification";

3GPP TS 36.579-4 [4]: "Mission Critical (MC) services over LTE; Part 4: Test Applicability and Implementation Conformance Statement (ICS) proforma specification";

3GPP TS 36.579-5 [5]: "Mission Critical (MC) services over LTE; Part 5: Abstract test suite (ATS)".

1 Scope

The present document specifies the protocol conformance testing for testing a MCPTT Client for compliance to the Mission Critical Push To Talk (MCPTT) over LTE protocol requirements defined by 3GPP.

In particular the present document contains:

- the overall test structure;
- the test configurations;
- the conformance requirement and reference to the core specifications;
- the test purposes; and
- a brief description of the test procedure, the specific test requirements and short message exchange table.

The present document is valid for MCPTT Clients implemented according to 3GPP releases starting from Release 13 up to the Release indicated on the cover page of the present document.

The following information relevant to testing specified in the present document could be found in accompanying specifications:

- default setting of the test parameters TS 36.579-1 [2];
- Implementation Conformance Statement (ICS) TS 36.579-4 [4] and Implementation eXtra Information for Testing (IXIT) TS 36.579-5 [5];
- the applicability of each test case TS 36.579-4 [4].

The test cases are expected to be executed through the 3GPP radio interface. The present document does not specify the protocol conformance testing for the EPS (LTE) bearers which carry the MCPTT data sent or received by the MCPTT Client and which are required to be supported by the UE in which the MCPTT Client is installed. This is defined in TS 36.523-1 [6].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 36.579-1: "Mission Critical (MC) services over LTE; Part 1: Common test environment".
- [3] 3GPP TS 36.579-3: "Mission Critical (MC) services over LTE; Part 3: Mission Critical Push To Talk (MCPTT) Server Application test specification".
- [4] 3GPP TS 36.579-4: "Mission Critical (MC) services over LTE; Part 4: Test Applicability and Implementation Conformance Statement (ICS)".
- [5] 3GPP TS 36.579-5: "Mission Critical (MC) services over LTE; Part 5: Abstract test suite (ATS)".

- [6] 3GPP TS 36.523-1: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 1: Protocol conformance specification".
- [7] 3GPP TS 22.179: "Mission Critical Push To Talk (MCPTT) over LTE; Stage 1".
- [8] 3GPP TS 23.179: "Functional architecture and information flows to support mission critical communication services; Stage 2".
- [9] 3GPP TS 24.379: "Mission Critical Push To Talk (MCPTT) call control; Protocol specification".
- [10] 3GPP TS 24.380: "Mission Critical Push To Talk (MCPTT) media plane control; Protocol specification".
- [11] 3GPP TS 24.481: "Mission Critical Services (MCS) group management; Protocol specification".
- [12] 3GPP TS 24.482: "Mission Critical Services (MCS) identity management; Protocol specification".
- [13] 3GPP TS 24.483: "Mission Critical Services (MCS) Management Object (MO)".
- [14] 3GPP TS 24.484: "Mission Critical Services (MCS) configuration management; Protocol specification".
- [15] 3GPP TS 33.179: " Security of Mission Critical Push To Talk (MCPTT) over LTE".
- [16] 3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [17] Void.
- [18] Void.
- [19] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".
- [20] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".
- [21] Void.
- [22] Void.
- [23] 3GPP TS 36.509: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Special conformance testing functions for User Equipment (UE)".
- [24] 3GPP TS 36.508: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Common Test Environments for User Equipment (UE) Conformance Testing".
- [25] OpenID Connect 1.0: "OpenID Connect Core 1.0 incorporating errata set 1", http://openid.net/specs/openid-connect-core-1_0.html.
- [26] Void.
- [27] Void.
- [28] Void.
- [29] Void.
- [30] 3GPP TS 33.310: "Network Domain Security (NDS); Authentication Framework (AF)".
- [31] Void.
- [32] 3GPP TS 23.003: "Numbering, addressing and identification".

- [33] 3GPP TS 33.180: "Security of the mission critical service".
- [34] IETF RFC 4354 "A Session Initiation Protocol (SIP) Event Package and Data Format for Various Settings in Support for the Push-to-Talk over Cellular (PoC) Service"
- [35] IETF RFC 4575 " A Session Initiation Protocol (SIP) Event Package for Conference State"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

For the purpose of the present document, the following terms and definitions given in 3GPP TS 24.379 [9] apply:

An MCPTT user is affiliated to an MCPTT group
An MCPTT user is affiliated to an MCPTT group at an MCPTT client
Affiliation status
Group identity
In-progress emergency private call state
In-progress imminent peril group state
MCPTT client ID
MCPTT emergency alert state
MCPTT emergency group state
MCPTT emergency group call state
MCPTT emergency private call state
MCPTT emergency private priority state
MCPTT imminent peril group call state
MCPTT imminent peril group state
MCPTT private emergency alert state
MCPTT speech
Media-floor control entity
Temporary MCPTT group identity
Trusted mutual aid
Untrusted mutual aid

For the purposes of the present document, the following terms and definitions given in 3GPP TS 22.179 [7] apply:

In-progress emergency
MCPTT emergency alert
MCPTT emergency group call
MCPTT emergency state
Partner MCPTT system
Primary MCPTT system

For the purpose of the present document, the following terms and definitions given in 3GPP TS 24.380 [10] apply:

MBMS subchannel

For the purpose of the present document, the following terms and definitions given in 3GPP TS 23.179 [8] apply:

Pre-selected MCPTT user profile

3.2 Symbols

For the purposes of the present document, the following symbols apply:

None.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

| | |
|----------------|---|
| ECGI | E-UTRAN Cell Global Identification |
| FFS | For Further Study |
| ICS | Implementation Conformance Statement |
| IPEG | In-Progress Emergency Group |
| IPEPC | In-Progress Emergency Private Call |
| IPIG | In-Progress Imminent peril Group |
| IUT | Implementation Under Test |
| IXIT | Implementation eXtra Information for Testing |
| MBMS | Multimedia Broadcast and Multicast Service |
| MBSFN | Multimedia Broadcast multicast service Single Frequency Network |
| MCPTT | Mission Critical Push To Talk |
| MCPTT group ID | MCPTT group IDentity |
| MEA | MCPTT Emergency Alert |
| MEG | MCPTT Emergency Group |
| MEGC | MCPTT Emergency Group Call |
| MEPC | MCPTT Emergency Private Call |
| MEPP | MCPTT Emergency Private Priority |
| MES | MCPTT Emergency State |
| MIME | Multipurpose Internet Mail Extensions |
| MIG | MCPTT Imminent peril Group |
| MIGC | MCPTT Imminent peril Group Call |
| MONP | MCPTT Off-Network Protocol |
| MPEA | MCPTT Private Emergency Alert |
| NAT | Network Address Translation |
| PLMN | Public Land Mobile Network |
| QCI | QoS Class Identifier |
| RTP | Real-time Transport Protocol |
| SAI | Service Area Identifier |
| SDP | Session Description Protocol |
| SIP | Session Initiation Protocol |
| SS | System Simulator |
| SSRC | Synchronization SouRCe |
| TGI | Temporary MCPTT Group Identity |
| TMGI | Temporary Mobile Group Identity |
| TP | Transmission Point |
| TP | Test Purpose |
| UE | User Equipment |
| URI | Uniform Resource Identifier |

4 General

4.1 Test methodology

4.1.1 Testing of optional functions and procedures

Any function or procedure which is optional, may be subject to a conformance test if it is implemented in the MCPTT Client.

A declaration by the MCPTT Client supplier (to use the Implementation Conformance Statement (ICS) proforma specified in TS 36.579-4 [4]) is used to determine whether an optional function/procedure has been implemented.

4.1.2 Test interfaces and facilities

Detailed descriptions of the MCPTT Client test interfaces and special facilities for testing are provided in 3GPP TS 36.509 [23].

4.2 Implicit testing

For some 3GPP MCPTT protocol features conformance is not verified explicitly in the present document. This does not imply that correct functioning of these features is not essential, but that these are implicitly tested to a sufficient degree in tests which are not explicitly dedicated to test the feature.

4.3 Repetition of tests

As a general rule, the test cases specified in the present document are highly reproducible and do not need to be repeated unless otherwise stated.

4.4 Handling of differences between conformance requirements in different releases of cores specifications

The conformance requirements which determine the scope of each test case are explicitly copy-pasted from relevant core specifications in the especially dedicated for this clause of each test with the title 'Conformance requirements'.

NOTE: When in the copy/pasted text there are references to other specifications the reference numbers will not match the reference numbers used in the present document. This approach has been taken in order to allow easy copy and then search for conformance requirements in those specifications.

When differences between conformance requirements in different releases of the cores specifications have impact on the Pre-test conditions, Test procedure sequence or/and the Specific message contents, the Conformance requirements related to different releases are specified separately with clear indication of the Release of the spec from which they were copied.

When there is no Release indicated for a conformance requirement text, this should be understood either as the Conformance requirements in the latest version of the spec with release = the TC Applicability release (which can be found in TS 36.579-4 [4], Table 4-1: Applicability of tests and additional information for testing, column 'Release'), or, as the Conformance requirements in the latest version of the spec of the release when the feature was introduced to the core specs.

4.5 Reference conditions

The reference environments used by all signalling and protocol tests is specified in TS 36.579-1 [2]. Where a test requires an environment that is different, this will be specified in the test itself.

For all test cases in this document unless specified otherwise the condition MCPTT applies for all message contents.

4.6 Generic setup procedures

A set of basic generic procedures for MCPTT Client-Server communication are described in TS 36.579-1 [2]. These procedures will be used in numerous test cases throughout the present document.

5 MCPTT Client Configuration

5.1 Configuration / Authentication / User Authorisation / UE Configuration / User Profile / Key Generation

5.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) attached to EPS services }
ensure that {
  when { the MCPTT User activates an MCPTT application and requests MCPTT initialisation }
  then { UE (MCPTT Client) performs MCPTT User Authentication }
}
```

(2)

```
with { UE (MCPTT Client) user authenticated }
ensure that {
  when { the UE (MCPTT Client) has established a secure HTTP tunnel }
  then { UE (MCPTT Client) performs key management authorization and obtains identity management
key material }
}
```

(3)

```
with { UE (MCPTT Client) has obtained identity management key material }
ensure that {
  when { the UE (MCPTT Client) requests user service authorization }
  then { UE (MCPTT Client) sends a user authorization request to the MCPTT Server }
}
```

(4)

```
with { UE (MCPTT Client) authorized for user services }
ensure that {
  when { the UE (MCPTT Client) requests configuration management authorization}
  then { UE (MCPTT Client) requests subscription to multiple documents simultaneously and request
the retrieval of the MCPTT UE Configuration document, the MCPTT User Profile Configuration Document
and the MCPTT Service Configuration Document }
}
```

(5)

```
with { UE (MCPTT Client) having obtained user configuration data }
ensure that {
  when { the UE (MCPTT Client) requests group management authorization }
  then { UE (MCPTT Client) receives the group profile including group traffic keys }
}
```

(6)

```
with { UE (MCPTT Client) having obtained all required configuration data }
ensure that {
  when { the UE (MCPTT Client) requires to refresh its service settings }
  then { UE (MCPTT Client) sends a SIP PUBLISH request }
}
```

5.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TR 24.980 clauses 4.2.1 and 4.3.1, TS 24.482 clause 6.2.1 and Annex A.2.1.2, TS 24.484 clauses 4.2.1, 4.2.2, 6.2.2, 6.3.1.1, 6.3.2.1, 6.3.2.2, 6.3.13.2.1 and 6.3.13.2.2, TS 24.481 clauses 6.2.2.2, 6.2.3, 6.3.3.2.1, 6.3.3.2.2 and 6.3.13.2.1, TS 24.379 clauses 7.2.1, 7.2.1A, 7.2.2 and 7.2.3, TS 33.179 clauses 5.6.1, 6.2, 7.2.3 and Annex D. Unless otherwise stated these are Rel-13 requirements.

[TR 24.980, clause 4.2.1]

The MCPTT UE follows the SIP registration procedures defined in 3GPP TS 24.229 [4]. In addition, when the conditions for performing IMS registration in bullets 2, 3, 4, 5 and 6 in subclause L.3.1.2 of 3GPP TS 24.229 [4] evaluate to true, the MCPTT UE registers with the IMS.

[TR 24.980, clause 4.3.1]

The MCPTT UE follows the procedures defined in 3GPP TS 24.229 [4] and 3GPP TS 33.203 [7] for authentication with IMS Authentication and Key Agreement (IMS-AKA), Sec-Agree and IPSec. The MCPTT UE supports integrity protection.

[TS 24.482, clause 6.2.1]

Upon an indication from the MCPTT client to initiate MCPTT user authentication, the IdM client shall perform the user authentication procedure according to 3GPP TS 33.179 [2] with the following clarifications:

- 1) shall establish a TLS tunnel to the authorisation endpoint of the IdM server as specified in 3GPP TS 33.179 [2] using the configured URL of the authorisation endpoint of the IdM server as specified in the "`/<x>/OnNetwork/AppServerInfo/IDMSAuthEndpoint`" leaf node defined in 3GPP TS 24.383 [11] and the clarifications in annex A;
- 2) shall generate an OIDC Authentication Request message as specified in the OpenID Connect 1.0 [6] and IETF RFC 6749 [5] with the following clarifications:
 - a) shall generate an HTTP GET request method according to IETF RFC 2616 [4];
 - b) shall include the configured parameter IdM client id as the `client_id` parameter specified in 3GPP TS 33.179 [2] in the query component of the authorization endpoint's URI using the "application/x-www-form-urlencoded" format as specified in W3C.REC-html401-19991224 [7]; and

NOTE 1: The configuration of `client_id` is specified in 3GPP TS 24.383 [11].

- c) shall include the remaining required parameters as specified in 3GPP TS 33.179 [2] in the query component of the authorization endpoint's URI using the "application/x-www-form-urlencoded" format as specified in W3C.REC-html401-19991224 [7]; and
- 3) shall send the HTTP GET request method towards the IdM server.

NOTE 2: The OpenID Connect 1.0 [6] specification allows for an alternative mechanism for sending the OIDC Authentication request message using an HTTP POST request method which can be used in place of steps 1, 2, and 3 above.

Upon receipt of an HTTP 200 (OK) response from the IdM server, the IdM client:

- 1) shall prompt the MCPTT user for their username and password;

NOTE 3: Other types of authentication are supported and are not defined by the OIDC specifications. 3GPP TS 33.179 [2] has defined username and password as a mandatory authentication method to be supported; hence a procedure to realize that method is included here.

- 2) shall generate an HTTP POST request method containing the MCPTT user's username and password; and
- 3) shall send the HTTP POST request method towards the IdM server.

Upon receipt of an OIDC Authentication Response message, the IdM client:

- 1) shall establish a TLS tunnel to the token endpoint of the IdM server as specified in 3GPP TS 33.179 [2] using the configured URL of the token endpoint of the IdM server as specified in the "/<x>/OnNetwork/AppServerInfo/IDMSTokenEndpoint" leaf node defined in 3GPP TS 24.383 [11] and the clarifications in annex A;
- 2) shall generate an OIDC Token Request message as specified in OpenID Connect 1.0 [6] and IETF RFC 6749 [5] with the following clarifications:
 - a) shall generate an HTTP POST request method according to IETF RFC 2616 [4]; and
 - b) shall include the grant_type parameter set to a value of "authorization_code" and the other required parameters in the entity body of the HTTP POST request method using the using the "application/x-www-form-urlencoded" format as specified in 3GPP TS 33.179 [2]; and
- 3) shall send the HTTP POST request method towards the IdM server.

Upon receipt of an OIDC Token Response message, the IdM client:

- 1) shall validate the id_token, access_token and refresh token in the received OIDC Token Response message as specified in the OpenID Connect 1.0 [6] specification; and
- 2) shall provide the id_token and access_token in the received OIDC Token Response message to the MCPTT client.

NOTE 4: The method in which the IdM client provides the id_token and access_token to the MCPTT client is implementation specific.

[TS 24.482, Annex A.2.1.2]

The HTTP client in the UE shall establish a TCP connection towards the home HTTP proxy FQDN and the home HTTP proxy port, unless the specific TCP connection is to be used for the IdM client to IdM server procedures described in subclause 6.2 and subclause 6.3 in the present document, in which case the HTTP client shall establish a TCP connection towards the IdM server.

The HTTP client in the UE shall establish a TLS tunnel via the TCP connection as specified in 3GPP TS 33.179 [2]. When establishing the TLS tunnel, the HTTP client in the UE shall act as a TLS client and the UE shall perform the TLS tunnel authentication using the TLS authentication method indicated by the TLS tunnel authentication method parameter according to 3GPP TS 33.179 [2]. The UE shall use the configured TLS tunnel authentication X.509 certificate and the configured TLS tunnel authentication pre-shared key when applicable for the used TLS authentication method. In order to prevent man-in-the-middle attacks, the HTTP client in the UE shall check the home HTTP proxy FQDN against the server's identity as presented in the received server's certificate message if the TCP connection terminates on the HTTP proxy. The HTTP client in the UE shall not check the portion of dereferenced HTTP URL against the server's identity as presented in the received server's certificate message if the TCP connection terminates on the HTTP proxy, but shall do so if the TCP connection terminates on the IdM server.

NOTE: The TLS tunnel can be terminated in the HTTP proxy (rather than in the HTTP server providing the dereferenced HTTP URL).

The HTTP client in the UE shall send and receive all HTTP messages via the TLS tunnel.

If the HTTP client in the UE has an access token of the "bearer" token type as specified in IETF RFC 6750 [14], the HTTP client in the UE shall include an Authorization header field with the "Bearer" authentication scheme as specified in IETF RFC 6750 [14] in HTTP requests.

[TS 33.179 Annex D]

All KMS communications are made via HTTPS. The MCPTT key management client is provisioned via XML content in the KMS's response. The XML content is designed to be extendable to allow KMS/client providers to add further information in the XML. Where the interface is extended, a different XML namespace should be used (so that may be ignored by non-compatible clients).

It is assumed that transmissions between the KMS and the key management client are secure and that the KMS has authenticated the identity of the key management client.

Additionally, to allow the transmission of key material securely between a secure element within the KMS and a secure element within the key management client, a security extension is defined which allows messages to be signed and key material to be encrypted using a shared Transport Key (TrK).

[TS 33.179 clause 5.6.1]

For key management authorization, the KM client in the UE presents an access token to the KMS over HTTP. The KMS validates the access token and if successful, provides user specific key material back to the UE KM client based on the MCPTT ID of the user. This includes identity based key information used for media and signalling protection.

For user service authorization, the MCPTT client in the UE presents an access token to the MCPTT server over SIP. The MCPTT server validates the access token and if successful, authorizes the user for full MCPTT services and sends an acknowledgement back to the MCPTT client. The MCPTT server then maps and maintains the IMPU to MCPTT ID association. The MCPTT ID to IMPU association shall only be known to the application layer. The SIP message used to convey the access token from the MCPTT client to the MCPTT server may be either a SIP REGISTER or SIP PUBLISH message.

The UE can now perform configuration management authorization and download the user profile. Following the flow described in subclause 10.1.4.2 of 3GPP TS 23.179 [2] "MCPTT user obtains the user profile (UE initiated)", the Configuration Management (CM) client in the UE sends an access token in the user profile query to the Configuration Management server over HTTP. The CM server receives the request and validates the access token, and if valid, the CM server uses the MCPTT ID to obtain the user profile from the MCPTT user database. The CM server then sends the user profile back to the CM client over HTTP.

Upon receiving the user's profile, the Group Management (GM) client in the UE can now perform group management authorization. The GM client obtains the user's group membership information from the user's profile, and following the flow shown in clause 10.1.5.2 of 3GPP TS 23.179 [2] "Retrieve group configurations at the group management client", the Group Management (GM) client in the UE sends an access token in the Get group configuration request to the host GM server of the group membership over HTTP. The GM server validates the access token, and if valid, completes the flow. As part of group management authorization, group key information is provided as per subclause 7.3.2 of the present document.

[TS 33.179 clause 7.2.3]

Case that HTTP proxy is used between the KMC and KMS

- 0) The key management client establishes a connection to the MCPTT KMS. As with other elements in the Common Services Core, the connection routed via, and secured by, the HTTP Proxy. The message flow below is within this secure connection.

NOTE: Additionally, the connection between the MCPTT KMS and the HTTP Proxy is secured according to clause 8.

- 1) The key management client makes a request for user key material from the MCPTT KMS. The request contains details of the identity (e.g. the MCPTT ID) requested for key management, and the time for which the key material is required.
- 2) The KMS provides a response containing key material. The response includes the type of key material, the period of use for the material and any domain-specific parameters required for its use. For public safety use, the key material itself shall be wrapped using a 256-bit transport key (TrK). The TrK is distributed via an out-of-band mechanism along with a 32-bit identifier, TrK-ID.

Case that HTTP proxy is not used between the KMC and KMS

- 0) The key management client establishes a direct HTTPS connection to the MCPTT KMS. The following message flow is within this secure connection.
- 1) The key management client makes a request for user key material from the MCPTT KMS. The request contains details of the identity requested for key management, and the time at which the key material is required.
- 2) The KMS provides a response containing key material. The response includes the type of key material, the period of use for the material and any domain-specific parameters required for its use. Optionally, the key material itself may also be wrapped using a 256-bit transport key (TrK), distributed via an out-of-band mechanism along with a 32-bit identifier (TrK-ID).

[TS 24.484, clause 4.2.1]

Upon start up the MCPTT UE bootstraps the required information (e.g. FQDN or IP address) to locate the configuration management server for configuration of the MCPTT UE initial configuration management object (MO) and the default MCPTT user profile configuration management object (MO).

In order to obtain access to the MCPTT service the MCPTT UE needs to obtain configuration data either online via the network or offline using some external device (e.g. a laptop). As part of the bootstrap process the MCPTT UE needs to discover either:

1. the online configuration management server in the network that configures the MCPTT UE initial configuration MO and the default MCPTT user profile configuration MO, then the MCPTT UE:
 - a) using the URI of the configuration management server obtained from the MCPTT UE initial configuration MO, obtains:
 - the MCPTT UE configuration document;
 - the MCPTT user profile configuration document; and
 - the MCPTT service configuration document; and
 - b) using the URI of the group management server obtained from the MCPTT UE initial configuration MO obtain the MCPTT group document; or

[TS 24.484, clause 4.2.2]

The MCPTT UE contacts the identity management server using the HTTPS URI stored in the MCPTT UE initial configuration MO and performs MCPTT User authentication as specified in 3GPP TS 24.382 [6].

The MCPTT UE, using the MCPTT ID obtained during MCPTT user authentication, subscribes to the MCPTT UE configuration document, the MCPTT user profile configuration document and the MCPTT service configuration document using the procedure for subscribing to multiple documents simultaneously using the subscription proxy function specified in subclause 6.3.13.2.2 (i.e., the CMS acts as a Subscription Proxy) and subscribes to the MCPTT group document using the procedure specified in 3GPP TS 24.381 [5]. If these documents have been updated since the current version stored in the MCPTT UE, then the MCPTT UE will receive a SIP NOTIFY request with an XCAP Diff document (see IETF RFC 5875 [11]), in which case the CMC updates its local document copies. Retrieval by the MCPTT UE using the notified HTTPS URI of the MCPTT group document is performed as specified in 3GPP TS 24.381 [5].

[TS 24.484, clause 6.2.2]

The CMC shall send the HTTP request over TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.382 [6].

[TS 24.484, clause 6.3.1.1]

A CMC shall support subclause 6.1.1 "*Document Management*" of OMA OMA-TS-XDM_Core-V2_1 [2] and subclause 6.3.13.2.2 for subscribing to configuration management documents.

[TS 24.484, clause 6.3.3.2.1]

In order to retrieve a configuration management document, a GC shall send an HTTP GET request with the Request URI that references the document to be updated to the network according to procedures specified in IETF RFC 4825 [14] "*Retrieve a Document*".

[TS 24.484, clause 6.3.3.2.2]

In order to retrieve a configuration management document, a CMC shall perform the procedures in subclause 6.3.3.2.1 specified for GC. The CMC shall set the Request-URI of the HTTP GET request to the "CMSXCAPRootURI" configured as per 3GPP TS 24.383 [4] and include the "auid" as per the appropriate application usage in clause 7.

Subclause 7.5 specifies which configuration management documents can be retrieved from the CMS over the CSC-4 reference point.

[TS 24.484, clause 6.3.13.2.1]

This procedure enables the CMC to subscribe to notification of changes of one or more configuration management documents defined in clause 7.

This procedure enables the MCPTT server to subscribe to notification of changes of the MCPTT service configuration document.

[TS 24.484, clause 6.3.13.2.2]

In order to subscribe to Configuration management document, a CMC shall send an initial SIP SUBSCRIBE request to the network according to the UE originating procedures specified in 3GPP TS 24.229 [22] and IETF RFC 5875 [11]. In the initial SIP SUBSCRIBE request, the CMC:

- a) ...
- b) if subscription to multiple documents simultaneously using the subscription proxy function is used:
 - 1) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the CMC shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element contains a relative path reference:
 - A) with the base URI being equal to the "CMSXCAPRootURI" configured in the CMC as per 3GPP TS 24.383 [4]; and
 - B) with the "auid" parameter set to the appropriate application usage identifying a configuration management document as described in clause 7;
 - 2) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the CMS;
- c) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the value of the access token received during authentication procedure as described in 3GPP TS 24.382 [6];
- d) if identity hiding is required:
 - 1) shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [9] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body; and
 - 2) shall include an application/mikey MIME body with the CSK as specified in 3GPP TS 24.379 [9];
- e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [22]), in a P-Preferred-Service header field according to IETF RFC 6050 [23]; and
- f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

Upon receiving a SIP NOTIFY request associated with a subscription created as result of the sent initial SIP SUBSCRIBE request:

- 1) if identity hiding is required, the CMC shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [9] for MCPTT client; and
- 2) shall handle the SIP NOTIFY request according to IETF RFC 5875 [11].

[TS 24.481, clauses 6.2.2.2]

In order to address an existing group document defining a group ID known by GC, the GC shall set the Request-URI of an HTTP request to a XCAP URI identifying a group document addressed by a group ID as described in subclause 7.2.10.2, where the group ID is set to the group ID known by GC and where the XCAP root URI is the XCAP root URI configured in the UE.

[TS 24.481, clauses 6.2.3]

The GMC shall send the HTTP request over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.382 [10].

The GMC shall perform the procedures in subclause 6.2.2 specified for GC.

[TS 24.481, clauses 6.3.3.2.1]

In order to retrieve a group document, a GC shall send an HTTP GET request with the Request URI that references the document to be retrieved to the network according to procedures specified in IETF RFC 4825 [22] "*Fetch a Document*".

[TS 24.481, clauses 6.3.3.2.2]

In order to retrieve a group document, a GMC shall perform the procedures in subclause 6.3.3.2.1 specified for GC.

[TS 24.481, clauses 6.3.13.2.1]

In order to subscribe to notification of changes of:

- a) one or more MCPTT group documents of MCPTT groups identified by MCPTT group IDs;

...

a GMC shall send an initial SIP SUBSCRIBE request to the network according to the UE originating procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the initial SIP SUBSCRIBE request, the GMC:

- a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the GMC shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

- 1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the GMC; and

B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCPTT group ID; or

...

- b) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the GMS;
- c) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the value of the access token received during authentication procedure as described in 3GPP TS 24.382 [49];
- d) if identity hiding is required:
 - 1) shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body; and
 - 2) shall include an application/mikey MIME body with the CSK as specified in 3GPP TS 24.379 [5];
- e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Preferred-Service header field according to IETF RFC 6050 [14]; and
- f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

Upon receiving a SIP NOTIFY request associated with a subscription created as result of the sent initial SIP SUBSCRIBE request:

- 1) if identity hiding is required, the GMC shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client; and
- 2) shall handle the SIP NOTIFY request according to IETF RFC 5875 [13].

[TS 24.379, clause 7.2.1]

When the MCPTT client performs SIP registration the MCPTT client shall perform the registration procedures as specified in 3GPP TS 24.229 [4].

The MCPTT client shall include the following media feature tags in the Contact header field of the SIP REGISTER request:

- 1) the g.3gpp.mcptt media feature tag; and
- 2) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt".

...

If the MCPTT client, upon performing SIP registration:

- 1) has successfully finished the user authentication procedure as described in 3GPP TS 24.382 [49];
- 2) has an available access-token;
- 3) based on implementation decides to use SIP REGISTER for service authorization; and
- 4) either confidentiality protection is enabled as specified in subclause 6.6.2.3.1 or integrity protection is enabled as specified in subclause 6.6.3.3.1;

then the MCPTT client:

...

- 2) if confidentiality protection is enabled as specified in subclause 6.6.2.3.1, shall encrypt the received access-token using the client server key (CSK) and shall include in the body of the SIP REGISTER request, an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the encrypted access-token, as specified in subclause 6.6.2.3.3;

...

- 4) if integrity protection is enabled as specified in subclause 6.6.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcptt-info+xml MIME body by following the procedures in subclause 6.6.3.3.3.

[TS 24.379, clause 7.2.1A]

This procedure is only referenced from other procedures.

When populating the SIP PUBLISH request, the MCPTT client shall:

- 1) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user;
- 2) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 3) shall set the Event header field to the "poc-settings" value; and
- 4) shall set the Expires header field according to IETF RFC 3903 [37], to 4294967295, if the MCPTT user is not removing the MCPTT service settings, otherwise to remove the MCPTT service settings the MCPTT client shall set the Expires header field to zero.

[TS 24.379, clause 7.2.2]

If based on implementation the MCPTT client decides to use SIP PUBLISH for MCPTT server settings to also perform service authorization and

- 1) has successfully finished the user authentication procedure as described in 3GPP TS 24.382 [49]; and
- 2) has available an access-token;

then the MCPTT client:

- 1) shall perform the procedures in subclause 7.2.1A;

...

- 3) if either confidentiality protection is enabled as specified in subclause 6.6.2.3.1 or integrity protection is enabled as specified in subclause 6.6.3.3.1 shall include an application/mikey MIME body with the CSK as MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.179 [46] in the body of the SIP PUBLISH request;
- 4) if confidentiality protection is enabled as specified in subclause 6.6.2.3.1, shall include in the body of the SIP PUBLISH request an application/vnd.3gpp.mcptt-info+xml MIME body with:
 - a) the <mcptt-access-token> element set to the received access-token encrypted using the client server key (CSK), as specified in subclause 6.6.2.3.3; and
 - b) the <mcptt-client-id> element set to the encrypted MCPTT client ID of the originating MCPTT client, as specified in subclause 6.6.2.3.3;
- ...
- 6) shall include an application/poc-settings+xml MIME body containing the Answer-Mode Indication setting in the <am-settings> element of the poc-settings event package set to the current answer mode setting ("auto-answer" or "manual-answer") of the MCPTT client according to IETF RFC 4354 [55]; and
- 7) if integrity protection is enabled as specified in subclause 6.6.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcptt-info+xml MIME body and application/poc-settings+xml MIME body by following the procedures in subclause 6.6.3.3.

The MCPTT client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [4].

[TS 24.379, clause 7.2.3]

To set, update, remove or refresh the MCPTT service settings, the MCPTT client shall generate a SIP PUBLISH request according 3GPP TS 24.229 [4], IETF RFC 3903 [37] and IETF RFC 4354 [55]. In the SIP PUBLISH request, the MCPTT client:

- 1) shall perform the procedures in subclause 7.2.1A;
- 2) if confidentiality protection is enabled as specified in subclause 6.6.2.3.1, shall include in the body of the SIP PUBLISH request, an application/vnd.3gpp.mcptt-info+xml MIME body with:
 - a) the <mcptt-request-uri> element set to the targeted MCPTT ID encrypted using the client server key (CSK), as specified in subclause 6.6.2.3.3; and
 - b) the <mcptt-client-id> element set to the encrypted MCPTT client ID of the originating MCPTT client, as specified in subclause 6.6.2.3.3;
- ...
- 4) shall include an application/poc-settings+xml MIME body containing the Answer-Mode Indication setting in the <am-settings> element of the poc-settings event package set to the current answer mode setting ("auto-answer" or "manual-answer") of the MCPTT client according to IETF RFC 4354 [55]; and
- 5) if integrity protection is enabled as specified in subclause 6.6.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcptt-info+xml MIME body and application/poc-settings+xml MIME body by following the procedures in subclause 6.6.3.3.

The MCPTT client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [4].

On receiving the SIP 200 (OK) response to the SIP PUBLISH request the MCPTT client may indicate to the MCPTT User the successful communication of the MCPTT service settings to the MCPTT server.

[TS 33.179, clause 6.2]

The support of Transport Layer Security (TLS) on HTTP-1 is mandatory. The profile for TLS implementation and usage shall follow the provisions given in 3GPP TS 33.310 [5], annex E.

If the PSK TLS based authentication mechanism is supported, the HTTP client in the MCPTT UE and the HTTP Proxy shall support the TLS version, PSK ciphersuites and TLS Extensions as specified in the TLS profile given in 3GPP TS 33.310 [5], annex E. The usage of pre-shared key ciphersuites for TLS is specified in the TLS profile given in 3GPP TS 33.310 [5], annex E.

5.1.3 Test description

5.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server).
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- The MCPTT client has been provisioned with the Initial UE Configuration Data as specified in TS 36.579-1 [2] clause 5.5.8.1 allowing for the location of the configuration management server for configuration of the MCPTT UE initial configuration management object (MO) and the default MCPTT user profile configuration management object (MO).
- A single APN (px_MCX_APN, TS 36.579-5 [5]) shall be provided in the Initial UE Configuration Data which the UE shall use to access each and all MCPTT relevant services including the MCPTT SIP-1 reference point, the MC common core services for the HTTP-1 reference point and the MC identity management service for the CSC-1 reference point.
- According to TS 33.180 [94] all HTTP connections are secured by TLS. The HTTP-1 interface authentication between the HTTP client in the MC UE and the HTTP server endpoint (HTTP proxy, IdM server or KMS) shall be performed by one-way authentication of the HTTP server endpoint based on server certificate as described in TS 33.180 [33] clause 6.1.1.
- The UE User is provided with username/password for user authentication (px_MCX_User_A_username, px_MCX_User_A_password as provided in TS 36.579-5 [5], Table 9.2-1: MCX Client Common PIXIT).
- The UE is provisioned with the names and values of the Transport Key (TrK) and the Integrity Key (InK), since the KMS shall encrypt the key material sent to the client with the TrK and sign the response with the TrK or the InK according to TS 33.180 [94].

Preamble:

- The UE is Switched OFF (state 1) according to TS 36.508 [24].

5.1.3.2 Test procedure sequence

Table 5.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|--------------|------|---------|
| | | U - S | Message | | |
| 1 | The UE is switched-on. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC related actions triggered by step 1 above are described in TS 36.579-1 [2] clause 5.4.2 'MCPTT UE registration' starting with step 2. The test sequence below shows only the MCPTT relevant messages. | - | - | - | - |
| 2 | Make the UE (MCPTT client) request service authorisation/configuration (NOTE 1) | - | - | - | - |
| 3-12 | Check: Does the UE (MCPTT client) correctly perform steps 1-10 of procedure 'MCX user authentication' as described in TS 36.579-1 [2] Table 5.3.2.3-1? | - | - | 1 | P |
| 13-16 | Check: Does the UE (MCPTT client) correctly perform steps 11-14 of procedure 'MCX user authentication' as described in TS 36.579-1 [2] Table 5.3.2.3-1? | - | - | 2 | P |
| - | EXCEPTION: In parallel to the events described in all steps below, the steps in Table 5.1.3.2-2 and Table 5.1.3.2-3 shall take place. | - | - | - | - |
| - | EXCEPTION: Steps 17a1-17b2 describe behaviour that depends on UE implementation; the "lower case letter" identifies a step sequence that take place when one or the other is the case. | - | - | - | - |
| 17a1 | Check: Does the UE (MCPTT client) send a SIP REGISTER request for service authorisation? | --> | SIP REGISTER | 3 | P |
| 17a2 | The SS (MCPTT server) sends a SIP 200 (OK). NOTE: The user is now authorized for MCPTT service. | <-- | SIP 200 (OK) | - | - |
| 17a3 | Check: Does the UE (MCPTT client) send a SIP PUBLISH request for update of PoC-settings? NOTE: See NOTE 1 of TS 36.579-1 [2] Table 5.3.2.3-2. | --> | SIP PUBLISH | 6 | P |
| 17a4 | The SS (MCPTT server) sends a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 17b1 | Check: Does the UE (MCPTT client) send a SIP PUBLISH request for service authorisation and update of PoC-settings? NOTE: See NOTE 1 of TS 36.579-1 [2] Table 5.3.2.3-2. | --> | SIP PUBLISH | 3, 6 | P |
| 17b2 | The SS (MCPTT server) sends a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated. | | | | | |

Table 5.1.3.2-2: Parallel Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'Configuration management subscription and notification procedure' as described in TS 36.579-1 [2] Table 5.3.2.3-2A? | - | - | 4 | P |

Table 5.1.3.2-3: Parallel Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'Group document subscription and notification procedure' as described in TS 36.579-1 [2] Table 5.3.2.3-2B? | - | - | 5 | P |

5.1.3.3 Specific message contents

Table 5.1.3.3-1: SIP REGISTER from the UE (Step 17a1, Table 5.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.3.2.4-12

Table 5.1.3.3-2: SIP PUBLISH from the UE (Step 17a3, Table 5.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.3.2.4-13A

Table 5.1.3.3-3: SIP PUBLISH from the UE (Step 17b1, Table 5.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.3.2.4-13

Table 5.1.3.3-4: SIP 200 (OK) from the SS (Steps 17a2, 17a4, 17b2, Table 5.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.3.2.4-26

5.2 Configuration / Group Creation / Group Regroup Creation / Group Regroup Teardown

5.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) attached to EPS services }
ensure that {
  when { the MCPTT user requests formation of a new MCPTT group }
  then { the UE (MCPTT client) initiates creation of the group by sending a HTTP PUT request }
}
```

(2)

```
with { UE (MCPTT Client) having access to at least two MCPTT groups }
ensure that {
  when { the MCPTT user requests the groups to be combined }
  then { the UE (MCPTT client) initiates creation of the temporary group by sending a HTTP POST request }
}
```

(3)

```

with { UE (MCPTT Client) having access to a temporary group }
ensure that {
  when { the MCPTT user requests temporary group tear down }
  then { the UE (MCPTT client) initiates tear down of the temporary group by sending a HTTP DELETE
request }
}

```

5.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.481 clauses 6.3.2.2.1, 6.3.2.2.2, 6.3.14.1, 6.3.14.2, 6.3.15.1 and 6.3.15.2; TS 33.180 clauses 7.3.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.481 clause 6.3.2.2.1]

In order to create a group document, a GC shall create an XML document of the application usage specified in subclause 7.2.1 and shall send the XML document to the network according to procedures specified in IETF RFC 4825 [22] "*Create or Replace a Document*". The GC shall set the Request-URI of the HTTP PUT request to an XCAP URI in users' tree where the XUI is set to a group creation XUI configuration parameter.

[TS 24.481 clause 6.3.2.2.2]

In order to create a group document, a GMC shall perform the procedures in subclause 6.3.2.2.1 specified for GC.

[TS 24.481 clause 6.3.14.1]

This procedure enables a GMC to initiate creation of a temporary MCPTT group by combining MCPTT groups.

[TS 24.481 clause 6.3.14.2]

In order to form a temporary MCPTT group, a GMC shall send a HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.3. In the HTTP POST request, the GMC:

- a) shall set the Request-URI to an XCAP URI:
 - 1) in users tree where the XUI is set to a group creation XUI configuration parameter; and
 - 2) with the document selector identifying the temporary MCPTT group to be created; and
- b) shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup creation specified in subclause 7.3.4.3, with a <group> element containing a group document for an MCPTT group. In the group document, the GMC shall include the <on-network-temporary> element according to subclause 7.2. In the <on-network-temporary> element, the GMC shall include <constituent-MCPTT-group-IDs> element according to subclause 7.2. In the <constituent-MCPTT-group-IDs> element, the GMC shall include one <constituent-MCPTT-group-ID> element according to subclause 7.2 for each MCPTT group to be combined.

Upon reception of an HTTP 2xx response to the sent HTTP POST request, the GMC shall consider the temporary MCPTT group formation as successful.

Upon reception of an HTTP 409 (Conflict) response with at least one <alt-value> element in the <uniqueness-failure> error element, the GMC may repeat procedures of the present subclause and identify the temporary MCPTT group being formed with an MCPTT Group ID indicated in an <alt-value> element.

[TS 24.481 clause 6.3.15.1] This procedure enables a GMC to initiate tear down of a temporary MCPTT group.

[TS 24.481 clause 6.3.15.2]

In order to tear down a temporary MCPTT group, the GMC shall send an HTTP DELETE request with Request-URI with an XCAP URI identifying a group document of the temporary MCPTT group according to procedures specified in IETF RFC 4825 [22] "*Delete an Element*".

[TS 33.180 clause 7.3.2]

The group creation procedure is described in clause 10.2.3 of 3GPP TS 23.280 [36] and applies to the MCPTT scenario of normal group creation by an MC administrator and user regrouping operations by an authorized user/dispatcher. To establish the security context for the group, the GMS follows the procedures in clause 5.7 to create a new GMK and GMK-ID.

The encapsulated GMK and GUK-ID is sent to group members by the GMS within a notification message (step 4 in clause 10.2.3 of 3GPP TS 23.280 [36]). The procedure is equivalent to that described in clause 5.7 of this specification.

[TS 33.180 clause 7.3.3.2]

Group Regroup procedures for the MC system are described in clause 10.2.4.1 of 3GPP TS 23.280 [36]. To create the security context for the temporary group, the GMS follows the procedures in clause 5.7, creating a new GMK and GMK-ID for the temporary group.

An encapsulated GMK and GUK-ID is sent to the temporary group members by the GMS within a notification message (step 5 in clause 10.2.4.1 of 3GPP TS 23.280 [36]). The procedure is equivalent to that described in clause 5.7.

5.2.3 Test description

5.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- E-UTRA related parameters are set to the default parameters for the basic single cell environment, as defined in TS 36.508 [6] clause 4.4.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.2.3.2 Test procedure sequence

Table 5.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Void | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC related actions are described in TS 36.579-1 [2] clause 5.4.3 'MCPTT CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages being exchanged. | - | - | - | - |
| 2 | Make the UE (MCPTT client) request creation of a new group (group B). (NOTE 1) | - | - | - | - |
| 3 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO Group Creation' as described in TS 36.579-1 [2] Table 5.3.26.3-1 to create group B? | - | - | 1 | P |
| 4-12 | Void | - | - | - | - |
| 13 | Make the UE (MCPTT client) request creation of a temporary group T combining groups A and B. (NOTE 1) | - | - | - | - |
| 14 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO Group Creation' as described in TS 36.579-1 [2] Table 5.3.27.3-1 to create temporary group T? | - | - | 2 | P |
| 14 A | Check: Does the UE (MCPTT client) correctly perform procedure 'NW initiated notifications regarding temporary group creation' as described in TS 36.579-1 [2] Table 5.3.22.3-1 to update the group document of group A and retrieve the GMK for the temporary group | - | - | 2 | P |
| 15-20 | Void | - | - | - | - |
| 21 | Make the UE (MCPTT client) request tear down of temporary group T. (NOTE 1) | - | - | - | - |
| 22 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO Group Tear Down' as described in TS 36.579-1 [2] Table 5.3.28.3-1 to delete temporary group T? | - | - | 3 | P |
| 22 A | Check: Does the UE (MCPTT client) correctly perform procedure 'NW initiated notifications regarding temporary group tear down' as described in TS 36.579-1 [2] Table 5.3.22.3-1 to update the group document and the GKTP document of group A? | - | - | 3 | P |
| 23-26 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated. | | | | | |

5.2.3.3 Specific message contents

Table 5.2.3.3-1..16: Void

Table 5.2.3.3-17: HTTP PUT (step 3, Table 5.2.3.2-1; step 1, TS 36.579-1 [2], Table 5.3.26.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.4.4-1, condition GROUPCREATE |
|--|

**Table 5.2.3.3-18: HTTP POST (step 14, Table 5.2.3.2-1;
step 1, TS 36.579-1 [2], Table 5.3.27.3-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.4.3-1, condition TEMPGROUP

**Table 5.2.3.3-19: HTTP 200 (OK) (step 14, Table 5.2.3.2-1;
step 2, TS 36.579-1 [2], Table 5.3.27.3-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.4.6-1, condition TEMPGROUP

**Table 5.2.3.3-20: HTTP DELETE (step 22, Table 5.2.3.2-1;
step 1, TS 36.579-1 [2], Table 5.3.28.3-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.4.5-1, condition TEMPGROUP

5.3 Configuration / Group Affiliation / Remote change / De-affiliation / Home MCPTT system

5.3.1 Test Purpose (TP)

(1)

```
with { MCPTT Client already provisioned with the group information or a pointer to the group
information, that the MCPTT Client is allowed to be affiliated }
ensure that {
  when { MCPTT User requests for current affiliation status and to subscribe to affiliation status
changes for the MCPTT User }
  then { UE (MCPTT Client) requests to subscribe to affiliation status changes for the MCPTT User
by sending the SS a SIP SUBSCRIBE message and starts informing the MCPTT User of any affiliation
status changes for the MCPTT User after the subscription is accepted }
}
```

(2)

```
with { MCPTT Client already provisioned with the group information or a pointer to the group
information, that the MCPTT Client is allowed to be affiliated }
ensure that {
  when { MCPTT User requests to affiliate to an MCPTT group }
  then { UE (MCPTT Client) requests to affiliate to an MCPTT group by sending the SS a SIP PUBLISH
message }
}
```

(3)

```
with { MCPTT Client already provisioned with the group information or a pointer to the group
information, that the MCPTT Client is allowed to be affiliated }
ensure that {
  when { MCPTT User requests for current affiliation status and to subscribe to affiliation status
changes for a target user }
  then { UE (MCPTT Client) requests to subscribe to affiliation status changes for the target user
by sending the SS a SIP SUBSCRIBE message and starts informing the MCPTT User of any affiliation
status changes for the target user after the subscription is accepted }
}
```

(4)

```
with { MCPTT client already provisioned with the group information or a pointer to the group
information that the MCPTT client is allowed to make affiliation changes for another user }
ensure that {
  when { MCPTT User requests that a target user be affiliated to an MCPTT group via mandatory mode }
  then { UE (MCPTT Client) requests that a target user be affiliated to an MCPTT group via
mandatory mode by sending the SS a SIP PUBLISH message }
}
```

(5)

```

with { MCPTT client already provisioned with the group information or a pointer to the group
information that the MCPTT client is allowed to make affiliation changes for another user }
ensure that {
  when { MCPTT User requests that a target user be de-affiliated to an MCPTT group via mandatory
mode }
  then { UE (MCPTT Client) requests that a target user be de-affiliated to an MCPTT group via
mandatory mode by sending the SS a SIP PUBLISH message }
}

```

(6)

```

with { MCPTT client already provisioned with the group information or a pointer to the group
information that the MCPTT client is allowed to make affiliation changes for another user }
ensure that {
  when { MCPTT User requests that a target user be affiliated to an MCPTT group via negotiated mode
}
  then { UE (MCPTT Client) requests that a target user be affiliated to an MCPTT group via
negotiated mode by sending the SS a SIP MESSAGE message }
}

```

(7)

```

with { MCPTT Client already provisioned with the group information or a pointer to the group
information, that the MCPTT Client is allowed to be affiliated }
ensure that {
  when { MCPTT User requests to de-subscribe to affiliation status changes for a target user }
  then { UE (MCPTT Client) requests to de-subscribe to affiliation status changes for a target
user by sending the SS a SIP SUBSCRIBE message }
}

```

(8)

```

with { MCPTT Client already affiliated with an MCPTT group }
ensure that {
  when { MCPTT User requests to de-affiliate from an MCPTT group }
  then { UE (MCPTT Client) requests to de-affiliate from an MCPTT group by sending the SS a SIP
PUBLISH message }
}

```

(9)

```

with { MCPTT Client already provisioned with the group information or a pointer to the group
information, that the MCPTT Client is allowed to be affiliated }
ensure that {
  when { MCPTT Server requests that the MCPTT User choose to affiliate to an MCPTT group via
negotiated mode by sending a SIP MESSAGE message }
  then { UE (MCPTT Client) accepts to affiliate to an MCPTT group by sending the SS a SIP PUBLISH
message }
}

```

5.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 9.2.1.2, 9.2.1.3, 9.2.1.4, and 9.2.1.5. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 9.2.1.2]

In order:

- to indicate that an MCPTT user is interested in one or more MCPTT group(s) at an MCPTT client;
- to indicate that the MCPTT user is no longer interested in one or more MCPTT group(s) at the MCPTT client;
- to refresh indication of an MCPTT user interest in one or more MCPTT group(s) at an MCPTT client due to near expiration of the expiration time of an MCPTT group with the affiliation status set to the "affiliated" state received in a SIP NOTIFY request in subclause 9.2.1.3;
- to send an affiliation status change request in mandatory mode to another MCPTT user; or

- any combination of the above;

the MCPTT client shall generate a SIP PUBLISH request according to 3GPP TS 24.229 [4], IETF RFC 3903 [37], and IETF RFC 3856 [51].

In the SIP PUBLISH request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the targeted MCPTT user is interested in at least one MCPTT group at the targeted MCPTT client, shall set the Expires header field according to IETF RFC 3903 [37], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the targeted MCPTT user is no longer interested in any MCPTT group at the targeted MCPTT client, shall set the Expires header field according to IETF RFC 3903 [37], to zero; and
- 6) shall include an application/pidf+xml MIME body indicating per-user affiliation information according to subclause 9.3.1. In the MIME body, the MCPTT client:
 - a) shall include all MCPTT groups where the targeted MCPTT user indicates its interest at the targeted MCPTT client;
 - b) shall include the MCPTT client ID of the targeted MCPTT client;
 - c) shall not include the "status" attribute and the "expires" attribute in the <affiliation> element; and
 - d) shall set the <p-id> child element of the <presence> root element to a globally unique value.

The MCPTT client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [4].

[TS 24.379, clause 9.2.1.3]

NOTE 1: The MCPTT UE also uses this procedure to determine which MCPTT groups the MCPTT user successfully affiliated to.

In order to discover MCPTT groups:

- 1) which the MCPTT user at an MCPTT client is affiliated to; or
- 2) which another MCPTT user is affiliated to;

the MCPTT client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [27].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the targeted MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];

- 4) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 6) shall include an Accept header field containing the application/pidf+xml MIME type; and
- 7) if requesting MCPTT groups where the MCPTT user is affiliated to at the MCPTT client, shall include an application/simple-filter+xml MIME body indicating per client restrictions of presence event package notification information according to subclause 9.3.2.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 2) if the MCPTT client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 3) shall include an Accept header field containing the application/pidf+xml MIME type.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26], if SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-user affiliation information constructed according to subclause 9.3.1, then the MCPTT client shall determine affiliation status of the MCPTT user for each MCPTT group at the MCPTT client(s) in the MIME body. If the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request is included, the <p-id> element value indicates the SIP PUBLISH request which triggered sending of the SIP NOTIFY request.

[TS 24.379, clause 9.2.1.4]

NOTE: Procedure for sending affiliation status change request in negotiated mode to several target MCPTT users is not supported in this version of the specification.

Upon receiving a request from the MCPTT user to send an affiliation status change request in negotiated mode to a target MCPTT user, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33]. In the SIP MESSAGE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the target MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 4) shall include an application/vnd.3gpp.mcptt-affiliation-command+xml MIME body as specified in Annex F.4; and
- 5) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP MESSAGE request, the MCPTT client shall indicate to the user that the request has been delivered to an MCPTT client of the target MCPTT user.

[TS 24.379, clause 9.2.1.5]

Upon receiving a SIP MESSAGE request containing:

- 1) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Asserted-Service header field according to IETF RFC 6050 [9]; and
- 2) an application/vnd.3gpp.mcptt-affiliation-command+xml MIME body with a list of MCPTT groups for affiliation under the <affiliate> element and a list of MCPTT groups for de-affiliation under the <de-affiliate> element;

then the MCPTT client:

- 1) shall send a 200 (OK) response to the SIP MESSAGE request;
- 2) shall seek confirmation of the list of MCPTT groups for affiliation and the list of MCPTT groups for de-affiliation, resulting in an accepted list of MCPTT groups for affiliation and an accepted list of MCPTT groups for de-affiliation; and
- 3) if the user accepts the request:
 - a) shall perform affiliation for each entry in the accepted list of MCPTT groups for affiliation for which the MCPTT client is not affiliated, as specified in subclause 9.2.1.2; and
 - b) shall perform de-affiliation for each entry in the accepted list of MCPTT groups for de-affiliation for which the MCPTT client is affiliated, as specified in subclause 9.2.1.2.

5.3.3 Test description

5.3.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble:
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.3.3.2 Test procedure sequence

Table 5.3.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--------|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) subscribe to affiliation status determination and later notifications for user A. (NOTE 1) | - | - | - | - |
| 2-4A | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to subscribe to its own affiliation status changes? | - | - | 1 | P |
| 4B | Check: Does the UE (MCPTT client) notify the user of being affiliated with group A? (NOTE 1) | - | - | 1 | P |
| 4C | Make the UE (MCPTT client) request de-affiliation of user A from group A. (NOTE 1) | - | - | - | - |
| 4D-4I | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to de-affiliate with group A? | - | - | 8 | P |
| 4J | Check: Does the UE (MCPTT client) notify the user of being no longer affiliated with group A? (NOTE 1) | - | - | 1 | P |
| 5 | Make the UE (MCPTT client) request affiliation of user A to group A. (NOTE 1) | - | - | - | - |
| 6-9A | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to affiliate with group A? | - | - | 2 | P |
| 10 | Check: Does the UE (MCPTT client) notify the user of being affiliated with group A? (NOTE 1) | - | - | 1 | P |
| 11 | Make the UE (MCPTT client) subscribe to affiliation status determination and later notifications for targeted user B. (NOTE 1) | - | - | - | - |
| 12-13B | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to subscribe to affiliation status changes of a target user? | - | - | 3 | P |
| 14 | Make the UE (MCPTT client) send an affiliation status change request to affiliate targeted user B to group A (mandatory mode). (NOTE 1) | - | - | - | - |
| 15-18A | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to have the target user affiliate with group A? | - | - | 4 | P |
| 19 | Check: Does the UE (MCPTT client) notify the user of the target user (user B) being affiliated with group A? (NOTE 1) | - | - | 3 | P |
| 20 | Make the UE (MCPTT client) send an affiliation status change request to de-affiliate targeted user B from group A (mandatory mode). (NOTE 1) | - | - | - | - |
| 21-23C | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to have the target user de-affiliate with group A? | - | - | 5 | P |

| | | | | | |
|--------|--|---|---|---|---|
| 24 | Check: Does the UE (MCPTT client) notify the user of the target user (user B) being no longer affiliated with group A? (NOTE 1) | - | - | 3 | P |
| 25 | Make the UE (MCPTT client) send an affiliation status change request to affiliate targeted user B to group A (negotiated mode). (NOTE 1) | - | - | - | - |
| 26-27 | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 to have a target user affiliate with group A via negotiated mode? | - | - | 6 | P |
| 28-29A | Steps 4-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 are performed informing that the affiliation status of the target user with group A is "affiliating" | - | - | - | - |
| 30 | Check: Does the UE (MCPTT client) notify the user of the target user (user B) being affiliated with group A? (NOTE 1) | - | - | 3 | P |
| 31 | Make the UE (MCPTT client) de-subscribe from getting affiliation status notifications for targeted user B. (NOTE 1) | - | - | - | - |
| 32-33 | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to de-subscribe from affiliation status changes for a target user? | - | - | 7 | P |
| 34 | Make the UE (MCPTT client) request de-affiliation of user A from group A. (NOTE 1) | - | - | - | - |
| 35-37C | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to de-affiliate with group A? | - | - | 8 | P |
| 38 | Check: Does the UE (MCPTT client) notify the user of being no longer affiliated with group A? (NOTE 1) | - | - | 1 | P |
| 39-40 | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 to affiliate the MCPTT user to group A via negotiated mode? | - | - | 9 | P |
| 41 | Check: Does the UE (MCPTT client) notify the user of another user is requesting user A get affiliated to group A? (NOTE 1) | - | - | 9 | P |
| 42 | Make the UE (MCPTT client) accept affiliation of user A to group A. (NOTE 1) | - | - | - | - |
| 43-46A | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation status change' as described in TS 36.579-1 [2] Table 5.3.34.3-1 to affiliate with group A? | - | - | 9 | P |
| 47 | Check: Does the UE (MCPTT client) notify the user of being affiliated with group A? (NOTE 1) | - | - | 1 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

5.3.3.3 Specific message contents

Table 5.3.3.3-1: SIP SUBSCRIBE from the UE (step 2, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1 | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-2 | | | |

Table 5.3.3.3-2: MCPTT-Info in SIP SUBSCRIBE (Table 5.3.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_A | | | |

Table 5.3.3.3-3: SIP SUBSCRIBE from the UE (step 12, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1 | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-4 | | | |

Table 5.3.3.3-4: MCPTT-Info in SIP SUBSCRIBE (Table 5.3.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_B | | | |

Table 5.3.3.3-5: Void**Table 5.3.3.3-6: SIP SUBSCRIBE from the UE (step 32, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition re-SUBSCRIBE | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "0" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-7 | | | |

Table 5.3.3.3-7: MCPTT-Info in SIP SUBSCRIBE (Table 5.3.3.3-6)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_B | | | |

Table 5.3.3.3-8..11: Void**Table 5.3.3.3-12: SIP PUBLISH from the UE (steps 6, 43, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-13 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-14 | | | |

Table 5.3.3.3-13: MCPTT-Info in SIP PUBLISH (Table 5.3.3.3-12)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_A | | | |

Table 5.3.3.3-14: PIDF in SIP PUBLISH (Table 5.3.3.3-12)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|-------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 5.3.3.3-15: SIP PUBLISH from the UE (step 15, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-16 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-17 | | | |

Table 5.3.3.3-16: MCPTT-Info in SIP PUBLISH (Table 5.3.3.3-15)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_B | | | |

Table 5.3.3.3-17: PIDF in SIP PUBLISH (Table 5.3.3.3-15)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|--------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| Entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 5.3.3.3-18: SIP PUBLISH from the UE (step 21, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "0" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-19 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-20 | | | |

Table 5.3.3.3-19: MCPTT-Info in SIP PUBLISH (Table 5.3.3.3-18)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_B | | | |

Table 5.3.3.3-20: PIDF in SIP PUBLISH (Table 5.3.3.3-18)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|--------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | not present | | | |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 5.3.3.3-21: SIP PUBLISH from the UE (steps 4D, 35, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "0" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-22 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-23 | | | |

Table 5.3.3.3-22: MCPTT-Info in SIP PUBLISH (Table 5.3.3.3-21)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_A | | | |

Table 5.3.3.3-23: PIDF in SIP PUBLISH (Table 5.3.3.3-21)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|-------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | not present | | | |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 5.3.3.3-24: SIP NOTIFY from the SS (step 4, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-25 | | | |

Table 5.3.3.3-25: PIDF in SIP NOTIFY (Table 5.3.3.3-24)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliated" | | | |

Table 5.3.3.3-26: SIP NOTIFY from the SS (steps 8, 45, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-27 | | | |

Table 5.3.3.3-27: PIDF in SIP NOTIFY (Table 5.3.3.3-26)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliating" | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 6, 43) | | | |

Table 5.3.3.3-28: SIP NOTIFY from the SS (steps 9, 46, Table 5.3.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-29 | | | |

Table 5.3.3.3-29: PIDF in SIP NOTIFY (Table 5.3.3.3-28)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliated" | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 6, 43) | | | |

Table 5.3.3.3-30: SIP NOTIFY from the SS (step 17, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-31 | | | |

Table 5.3.3.3-31: PIDF in SIP NOTIFY (Table 5.3.3.3-30)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliating" | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 15) | | | |

Table 5.3.3.3-31A: SIP NOTIFY from the SS (step 28, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-31B | | | |

Table 5.3.3.3-31B: PIDF in SIP NOTIFY (Table 5.3.3.3-31A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliating" | | | |

Table 5.3.3.3-32: SIP NOTIFY from the SS (step 18, Table 5.3.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-33 | | | |

Table 5.3.3.3-33: PIDF in SIP NOTIFY (Table 5.3.3.3-32)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence entity | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple id | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliated" | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 15) | | | |

Table 5.3.3.3-33A: SIP NOTIFY from the SS (step 29, Table 5.3.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-33B | | | |

Table 5.3.3.3-33B: PIDF in SIP NOTIFY (Table 5.3.3.3-33A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliated" | | | |

Table 5.3.3.3-34: SIP NOTIFY from the SS (step 23, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-35 | | | |

Table 5.3.3.3-35: PIDF in SIP NOTIFY (Table 5.3.3.3-34)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | “deaffiliating” | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 21) | | | |

Table 5.3.3.3-36: SIP NOTIFY from the SS (step 37, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-37 | | | |

Table 5.3.3.3-37: PIDF in SIP NOTIFY (Table 5.3.3.3-36)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | “deaffiliating” | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 35) | | | |

Table 5.3.3.3-38: SIP MESSAGE from the UE (step 26, Table 5.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition AFFILIATION | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-39 | | | |

Table 5.3.3.3-39: MCPTT-Info in SIP MESSAGE (Table 5.3.3.3-38)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_ID_User_B | | | |

Table 5.3.3.3-40: Void

**Table 5.3.3.3-41: SIP MESSAGE from the SS (step 39, Table 5.3.3.2-1;
step 2, TS 36.579-1 [2] Table 5.3.33.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition AFFILIATION | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.3.3-42 | | | |

Table 5.3.3.3-42: MCPTT-Info in SIP MESSAGE (Table 5.3.3.3-41)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | not present | | | |

Table 5.3.3.3-43: Void

**Table 5.3.3.3-44: SIP NOTIFY from the SS (step 13A, Table 5.3.3.2-1;
step 4, TS 36.579-1 [2] Table 5.3.29.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-45 | | | |

Table 5.3.3.3-45: PIDF in SIP NOTIFY (Table 5.3.3.3-44)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | not present | | | |

**Table 5.3.3.3-46: SIP NOTIFY from the SS (steps 4H, 37B, Table 5.3.3.2-1;
step 6, TS 36.579-1 [2] Table 5.3.34.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-46A | | | |

Table 5.3.3.3-46A: PIDF in SIP NOTIFY (Table 5.3.3.3-46)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple id | | | | |
| status | not present | | | |
| ..p-id | same value as received in the corresponding SIP PUBLISH (step 4D, 35) | | | |

Table 5.3.3.3-46B: SIP NOTIFY from the SS (step 23B, Table 5.3.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-46C | | | |

Table 5.3.3.3-46C: PIDF in SIP NOTIFY (Table 5.3.3.3-46B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| entity attribute | px_MCPTT_ID_User_B | | | |
| tuple id | | | | |
| Id attribute | px_MCX_Client_B_ID | | | |
| status | not present | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 21) | | | |

Table 5.3.3.3-47: SIP NOTIFY from the SS (step 4F, Table 5.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.3.3.3-48 | | | |

Table 5.3.3.3-48: PIDF in SIP NOTIFY (Table 5.3.3.3-47)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | "deaffiliating" | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH (step 4D) | | | |

5.4 Configuration / Pre-established Session Establishment / Pre-established Session Modification / Pre-established Session Release

5.4.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service }
ensure that {
  when { MCPTT User requests the creation of a pre-established session }
  then { UE (MCPTT Client) requests the creation of a pre-establish session by sending a SIP INVITE message }
}
```

(2)

```
with { the MCPTT client already having a pre-established session created }
ensure that {
  when { MCPTT User requests the modification of a pre-established session }
  then { UE (MCPTT Client) requests the modification of a pre-establish session by sending a SIP re-INVITE message or a SIP UPDATE message (depending on UE implementation) }
}
```

(3)

```
with { the MCPTT client already having a pre-established session created }
ensure that {
  when { MCPTT Server requests the modification of a pre-established session by sending either a SIP UPDATE message or a SIP re-INVITE message }
  then { UE (MCPTT Client) responds to the pre-established session modification request by sending a SIP 200 (OK) message }
}
```

(4)

```
with { the MCPTT client already having a pre-established session created }
ensure that {
  when { MCPTT User requests the release of a pre-established session }
  then { UE (MCPTT Client) requests the release of a pre-establish session by sending a SIP BYE message }
}
```

(5)

```
with { the MCPTT client already having a pre-established session created }
ensure that {
  when { MCPTT Server requests the release of a pre-established session by sending a SIP BYE message }
  then { UE (MCPTT Client) responds to the pre-established session release request by sending a SIP 200 (OK) message }
}
```

5.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 8.2.1, 8.3.1.1, 8.3.1.2, 8.4.1.1, 8.4.1.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 8.2.1]

When the MCPTT client initiates a pre-established session the MCPTT client shall:

- 1) gather ICE candidates according to IETF RFC 5245 [17]; and

NOTE 1: ICE candidates are only gathered on interfaces that the MCPTT UE uses to obtain MCPTT service.

- 2) generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to the public service identity of the participating MCPTT function serving the MCPTT user;
- 2) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field with the media feature tag g.3gpp.mcptt along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref set to the value "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 7) shall include the "timer" option tag in the Supported header field;
- 8) should include the Session-Expires header field according to IETF RFC 4028 [7] and should not include the "refresher" header field. The "refresher" header field parameter shall be set to "uac" if included;
- 9) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1, and include ICE candidates in the SDP offer as per IETF RFC 5245 [17]; and
- 10) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

NOTE 2: If ICE candidate evaluation results in candidate pairs other than the default candidate pair being selected a further offer answer exchange using the procedures in subclause 8.3 will be needed.

[TS 24.379, clause 8.3.1.1]

When the MCPTT client needs to modify the pre-established session outside of an MCPTT session, the MCPTT client:

- 1) shall generate a SIP UPDATE request or a SIP re-INVITE request according to 3GPP TS 24.229 [4];
- 2) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1, and include ICE candidates in the SDP offer as per IETF RFC 5245 [17], if required; and
- 3) shall send the SIP request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

On receipt of the SIP 200 (OK) response the MCPTT client:

- 1) shall interact with media plane as specified in 3GPP TS 24.380 [5], if there is change in media parameters or codecs in the received SDP answer, compared to those in the previously agreed SDP; and
- 2) shall interact with media plane as specified in 3GPP TS 24.380 [5], if there is a media stream that is currently used in the pre-established session, marked as rejected in the received SDP answer.

NOTE: The MCPTT client keeps resources for previously agreed media stream, media parameters and codecs until it receives a SIP 200 (OK) response.

[TS 24.379, clause 8.3.1.2]

Upon receiving a SIP UPDATE request or a SIP re-INVITE request to modify an existing pre-established session without associated MCPTT session, the MCPTT client:

- 1) shall validate that the received SDP offer includes at least one media stream for which the media parameters and at least one codec is acceptable by the MCPTT client and if not reject the request with a SIP 488 (Not Acceptable Here) response. Otherwise, continue with the rest of the steps; and
- 2) shall generate a SIP 200 (OK) response as follows:
 - a) shall include an SDP answer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2, and include ICE candidates in the SDP answer as per IETF RFC 5245 [17], if required.

[TS 24.379, clause 8.4.1.1]

NOTE: The MCPTT client needs to be prepared to release the pre-established session when receiving a SIP BYE request generated by the SIP core (e.g. due to network release of media plane resources).

When a MCPTT client needs to release a pre-established session as created in subclause 8.2.1, the MCPTT client:

- 1) shall generate a SIP BYE request according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall set the Request-URI of the SIP BYE request to the URI that identifies the pre-established session;
- 3) shall send the SIP BYE request towards the participating MCPTT function within the SIP dialog of the pre-established session according to rules and procedures of the 3GPP TS 24.229 [4]; and
- 4) shall, upon receiving a SIP 200 (OK) response to the SIP BYE request interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 8.4.1.2]

Upon receiving a SIP BYE request from the participating MCPTT function within a pre-established session the MCPTT client shall check whether there are any MCPTT sessions using the pre-established session, and:

- 1) if there is an established MCPTT session then the MCPTT client shall remove the MCPTT client from the MCPTT session by performing the procedures for session release for each MCPTT session as specified in 3GPP TS 24.380 [5]; and
- 2) if there is no MCPTT session using the pre-established session, then the MCPTT client shall:
 - a) interact with the media plane as specified in 3GPP TS 24.380 [5] for disconnecting the media plane resources towards the participating MCPTT function; and
 - b) shall generate and send a SIP 200 (OK) response to the SIP BYE request according to rules and procedures of 3GPP TS 24.229 [4].

5.4.3 Test description

5.4.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.4.3.2 Test procedure sequence

Table 5.4.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|--|------------------|--------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) initiate establishment of a pre-established session without implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX pre-established session establishment' as described in TS 36.579-1 [2] Table 5.3.3.3-1 to create a pre-established session? | - | - | 1 | P |
| 2A-3A | Void | - | - | - | - |
| - | EXCEPTION: Steps 4a1-5b1 describe behaviour that depends on the UE implementation. The "lower case letter" identifies a step sequence that takes place if the UE is capable to provide pre-established session modification triggered by the user. | - | - | - | - |
| 4a1 | IF pc_MCX_UserinitiatedPreestablishedSessionModification THEN: Make the UE (MCPTT client) request to modify the pre-established session by requesting usage of implicit floor control. | - | - | - | - |
| 4a2 | The E-UTRA/EPC signalling according to TS 36.579-1 [2] clause 5.4.3 'MCX CO communication in E-UTRA' takes place | - | - | - | - |
| - | EXCEPTION: Steps 5a1-5b1 describe behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that takes place if the UE uses the SIP UPDATE message or the SIP re-INVITE message to modify an existing pre-established session. | - | - | - | - |
| 5a1 | Check: Does the UE (MCPTT client) send a SIP UPDATE message to modify the pre-established session? | --> | SIP UPDATE | 2 | P |
| 5a2 | The SS responds to the SIP UPDATE message with a SIP 200 (OK) message | <-- | SIP 200 (OK) | - | - |
| 5b1 | Check: Does the UE (MCPTT client) correctly perform steps 1-4 of procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to modify the pre-established session? | - | - | 2 | P |
| 6 | Void | - | - | - | - |
| - | EXCEPTION: Steps 6Aa1 describes behaviour that depends on the UE implementation. The "lower case letter" identifies a step sequence that takes place if the UE is not capable to provide pre-established session modification triggered by the user. | - | - | - | - |
| 6Aa1 | IF NOT pc_MCX_UserinitiatedPreestablishedSessionModification THEN: The E-UTRA/EPC signalling according to TS 36.579-1 [2] clause 5.4.4 'MCX CT communication in E-UTRA' takes place | - | - | - | - |
| 7 | The SS sends a SIP UPDATE message to modify the Floor priority of the pre-established session. | <-- | SIP UPDATE | - | - |
| 8 | Check: Does the UE (MCPTT client) respond to the SIP UPDATE message with a SIP 200 (OK) message? | --> | SIP 200 (OK) | 3 | P |

| | | | | | |
|--|--|---|---|---|---|
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to modify the floor priority of the pre-established session? | - | - | 3 | P |
| 10 | Void | - | - | - | - |
| 11 | Make the UE (MCPTT client) release the pre-established session. (NOTE 1) | - | - | - | - |
| 12 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1 to release the pre-established session? | - | - | 4 | P |
| 13 | Void | - | - | - | - |
| 14 | Make the UE (MCPTT client) initiate establishment of a pre-established session without implicit floor request. (NOTE 1) | - | - | - | - |
| 15 | Procedure 'MCX pre-established session establishment' as described in TS 36.579-1 [2] Table 5.3.3.3-1 is performed to create a pre-established session. | - | - | - | - |
| 15A - 16A | Void | - | - | - | - |
| 17 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 to release the pre-established session? | - | - | 5 | P |
| 18 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

5.4.3.3 Specific message contents

Table 5.4.3.3-1..5: Void

Table 5.4.3.3-5A: SIP UPDATE from the UE (step 5a1, Table 5.4.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.15.1-1, condition MO_CALL | | | | |
|---|----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-5B | | | |

Table 5.4.3.3-5B: SDP in SIP UPDATE (Table 5.4.3.3-5A) or re-INVITE (Table 5.4.3.3-6)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED |
|---|

Table 5.4.3.3-6: SIP INVITE from the UE (step 5b1, Table 5.4.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re-INVITE | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | Contact header with the same Contact URI and the same mandatory feature parameters as in the INVITE creating the dialog | | | |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-5B | | | |

Table 5.4.3.3-6A: SIP 200 (OK) from the SS (steps 5a2, 5b1, Table 5.4.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|----------------------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | | | | |
| addr-spec | | | | |
| user-info and host | tsc_MCX_SessionID_B | The URI that identifies the pre-established session | | |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-6B | | | |

Table 5.4.3.3-6B: SDP in SIP 200 (OK) (Table 5.4.3.3-6A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED

Table 5.4.3.3-6C: SIP UPDATE from the SS (step 7, Table 5.4.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.15.2-1, condition MO_CALL | | | | |
|---|----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-6D | | | |

Table 5.4.3.3-6D: SDP in SIP UPDATE (Table 5.4.3.3-6C)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION | | | | |
|---|--------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description [2] | | Media description for media control | | |
| media attribute | | a= line attribute = fmp | | |
| fmp | | | | |
| format specific parameters | | | | |
| mc_priority | "2" | | | |

Table 5.4.3.3-6E: SIP 200 (OK) from the UE (steps 8, 9, Table 5.4.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | Contact header with the same Contact URI and the same mandatory feature parameters as in the INVITE creating the dialog | | | |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-6F | | | |

Table 5.4.3.3-6F: SDP in SIP 200 (OK) (Table 5.4.3.3-6E)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 5.4.3.3-7: SIP INVITE from the SS (step 9, Table 5.4.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | same as in the response for the INVITE creating the dialog | | | |
| Message-body | | | | |
| SDP Message | As described in Table 5.4.3.3-7A | | | |

Table 5.4.3.3-7A: SDP in SIP INVITE (Table 5.4.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION | | | | |
|---|--------------|-------------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description [2] | | Media description for media control | | |
| media attribute | | a= line attribute = fmtp | | |
| fmtp | | | | |
| format specific parameters | | | | |
| mc_priority | "3" | | | |

Table 5.4.3.3-7B: Void

Table 5.4.3.3-8: SIP BYE from the UE (step 12, Table 5.4.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.10.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1 | | | | |
|---|---------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | tsc_MCX_SessionID_B | The URI that identifies the pre-established session | | |

Table 5.4.3.3-9: SIP BYE from the SS (step 17, Table 5.4.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL | | | | |
|--|---------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | tsc_MCX_SessionID_B | The URI that identifies the pre-established session | | |

5.5 Configuration / Determination of MCPTT Service Settings / Current Active MCPTT Settings / De-subscribe

5.5.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { MCPTT User requests to verify the currently active MCPTT service settings or to discover
MCPTT service settings }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to find the MCPTT service settings and
responds to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(2)

```
with { UE (MCPTT Client) having already subscribed to find the MCPTT service settings }
ensure that {
  when { MCPTT User requests to re-subscribe for MCPTT service settings }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to re-subscribe for the MCPTT service
settings and responds to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(3)

```
with { UE (MCPTT Client) having already subscribed to find the MCPTT service settings }
ensure that {
  when { MCPTT User requests to de-subscribe for MCPTT service settings }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to de-subscribe for the MCPTT service
settings and responds to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

5.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 7.2.4. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 7.2.4]

In order to discover MCPTT service settings of another MCPTT client of the same MCPTT user or to verify the currently active MCPTT service settings of this MCPTT client, the MCPTT client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 6665 [26], and IETF RFC 4354 [55].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the MCPTT user;

- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) shall set the Event header field to the 'poc-settings' value;
- 5) shall include an Accept header field containing the "application/poc-settings+xml" MIME type;
- 6) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295; and

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 7) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 6665 [26], IETF RFC 4354 [55]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Event header field to the 'poc-settings' value;
- 2) shall include an Accept header field containing the "application/poc-settings+xml" MIME type;
- 3) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295; and

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 4) if the MCPTT client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [26], to zero.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 6665 [26] and IETF RFC 4354 [55], that contains an application/poc-settings+xml MIME body the MCPTT client shall cache:

- 1) the <am-settings> element of the poc-settings+xml MIME body for each MCPTT client identified by the "id" attribute according to IETF RFC 4354 [55] as the current Answer-mode indication of that MCPTT client; and
- 2) the <selected-user-profile-index> element of the poc-settings+xml MIME body for each MCPTT client identified by the "id" attribute according to IETF RFC 4354 [55] as the active MCPTT service user profile of that MCPTT client.

5.5.3 Test description

5.5.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- E-UTRA related parameters are set to the default parameters for the basic single cell environment, as defined in TS 36.508 [20] clause 4.4.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.5.3.2 Test procedure sequence

Table 5.5.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) subscribe to MCPTT service settings determination and later notifications. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to request to verify the currently active MCPTT service settings of the UE (MCPTT client)? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 6 | Make the UE (MCPTT client) re-subscribe to MCPTT service settings determination and later notifications. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to re-subscribe to MCPTT service settings and to receive later notifications? | - | - | 2 | P |
| 8-10 | Void. | - | - | - | - |
| 11 | Make the UE (MCPTT client) de-subscribe from MCPTT service settings notifications. (NOTE 1) | - | - | - | - |
| 12-14 | Check: Does the UE (MCPTT client) correctly perform steps 1a1-3 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to de-subscribe from MCPTT service settings? | - | - | 3 | P |
| - | EXCEPTION: SS (MCPTT server) releases the E-UTRA connection. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI command. | | | | | |

5.5.3.3 Specific message contents

Table 5.5.3.3-1: SIP SUBSCRIBE from the UE (step 2, Table 5.5.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition POC-SETTINGS-EVENT | | | | |
|--|--|-------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 7.2.4 | |
| value | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.3-2 | | | |

Table 5.5.3.3-1A: SIP SUBSCRIBE from the UE (step 7, Table 5.5.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition POC-SETTINGS-EVENT, re_SUBSCRIBE | | | | |
|--|--|-------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 7.2.4 | |
| value | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.3-2 | | | |

Table 5.5.3.3-2: MCPTT-Info in SIP SUBSCRIBE (Table 5.5.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition POC-SETTINGS-EVENT | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 5.5.3.3-3: SIP 200 (OK) from the SS (steps 2, 7, 13, Table 5.5.3.2-1; step 3, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition SUBSCRIBE-RSP | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 5.5.3.3-4: SIP NOTIFY from the SS (steps 2, 7, Table 5.5.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition POC-SETTINGS-EVENT | | | | |
|---|--|---------------------|-------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PoC-Settings | RFC 4354 [103] | |
| MIME-part-body | PoC-Settings as described in Table 5.5.3.3-5 | | | |

Table 5.5.3.3-5: PoC-Settings in SIP NOTIFY (Table 5.5.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.11.2-1, condition AUTOMATIC | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 5.5.3.3-6: Void

Table 5.5.3.3-7: SIP SUBSCRIBE from the UE (step 12, Table 5.5.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition POC-SETTINGS-EVENT, re_SUBSCRIBE | | | | |
|--|--|-------------------|----------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 7.2.4 | |
| value | "0" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.3-2 | | | |

5.6 Configuration / Download CSK

5.6.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { MCPTT Client receives a CSK key download message via a SIP MESSAGE message }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and replaces the existing CSK and CSK-ID associated with the participating MCPTT function and uses the new CSK information with a SIP INVITE message when prompted to initiate a call and }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
  when { the MCPTT User engages in communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server and uses the updated CSK to protect the sent floor control messages }
}
```

(3)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
  when { MCPTT User requests to terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE message and leaves the MCPTT session }
}
```

5.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 7.2.5, TS 33.180 clause 9.2.1.4, TS 24.380 clause 13.3.3. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 7.2.5]

When the MCPTT client receives a SIP MESSAGE request containing:

- 1) a P-Asserted-Service header field containing the "urn:urn-7:3gpp-service.ims.icsi.mcptt"; and
- 2) an application/mikey MIME body;

Then, if the key identifier within the CSB-ID of the MIKEY payload is a CSK-ID (4 most-significant bits have the value '2'), the MCPTT client:

- 1) shall follow the security procedures in clause 9.2.1 of 3GPP TS 33.180 [78] to extract the CSK. The client:
 - a) if the initiator field (IDRi) has type 'URI' (identity hiding is not used), the client:
 - i) shall extract the initiator URI from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]. If the initiator URI deviates from the public service identity of the participating MCPTT function serving the MCPTT user, shall reject the SIP MESSAGE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;
 - ii) shall convert the initiator URI to a UID as described in 3GPP TS 33.180 [78];
 - b) if the initiator field (IDRi) has type 'UID' (identity hiding in use), the client:
 - ii) shall convert the public service identity of participating MCPTT function serving the MCPTT user to a UID as described in 3GPP TS 33.180 [78];
 - i) shall compare the generated UID with the UID in the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]. If the two initiator UIDs deviate from each other, shall reject the SIP MESSAGE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;
 - c) shall use the UID to validate the signature of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - d) if authentication verification of the I_MESSAGE fails, shall reject the SIP MESSAGE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;
 - e) shall extract and decrypt the encapsulated CSK using the participating MCPTT function's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - f) shall extract the CSK-ID, from the payload as specified in 3GPP TS 33.180 [78];
- 2) Upon successful extraction, the client shall replace the existing CSK and CSK-ID associated with the participating MCPTT function, with the extracted CSK and CSK-ID in the 'key download' message.

[TS 33.180, clause 9.2.1.4]

The MCX Server may decide to update an existing CSK at any time. This may be due to CSK revocation or expiry.

The CSK shall be updated by the MCX Server using the 'key download' procedure, defined in clause 5.8. Upon receipt of a CSK via a 'key download' procedure, the MC client shall identify the type of key as a CSK via the 4 most significant bits of the CSK-ID. The MC client shall:

- discard any previous CSKs associated with the MC Server FQDN, and
- use the new CSK for uplink signalling with the MC Server.

[TS 24.380 clause 13.3.3]

The MCPTT client:

1. in an on-network group call of an MCPTT group which is not a constituent MCPTT group of a temporary MCPTT group:
 - A) if protection of media is negotiated and the GMK and the GMK-ID of the MCPTT group were received using the group document subscription and notification procedure specified in 3GPP TS 24.481 [12] for the MCPTT group:
 - i) shall encrypt sent media according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the GMK and GMK-ID as specified in subclause 13.2; and

- ii) shall decrypt received media according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the GMK and GMK-ID as specified in subclause 13.2;
- B) if protection of floor control messages sent using unicast is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:
- i) shall encrypt floor control messages sent using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
 - ii) shall decrypt floor control messages received using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2;
- C) if protection of floor control messages sent over the MBMS subchannel from the participating MCPTT function to the served MCPTT clients is required:
- i) if a MuSiK and a MuSiK-ID are associated with the on-network group call, shall decrypt floor control messages received over the MBMS subchannel for floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.180 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the MuSiK and the MuSiK-ID associated with the on-network group call as specified in subclause 13.2; and
 - ii) if a MuSiK and a MuSiK-ID are not associated with the on-network group call and the MKFC and the MKFC-ID of the MCPTT group were received using the group document subscription and notification procedure specified in 3GPP TS 24.481 [12] for the MCPTT group, shall decrypt floor control messages received over the MBMS subchannel for floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the MKFC and MKFC-ID as specified in subclause 13.2; and

NOTE 1: The MCPTT client can receive floor control messages encrypted using SRTP-MK, SRTP-MS and SRTP-MKI generated using the MKFC and MKFC-ID from a participating MCPTT function compliant only to Release 13 of the present document.

- D) if protection of media control messages sent using unicast between the participating MCPTT function and the MCPTT client is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:
- i) shall encrypt media control messages sent using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
 - ii) shall decrypt media control messages received using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.180 [18] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2;

5.6.3 Test description

5.6.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)

- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.6.3.2 Test procedure sequence

Table 5.6.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 requesting to update the existing CSK?. | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| 3 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1, and using the updated CSK to protect the SIP INVITE message and the SIP ACK message? | - | - | 1 | P |
| 5 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 2 | P |
| 6 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1, using the updated CSK to protect the Floor Release message? | - | - | 2 | P |
| 8 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1 to release the call, using the updated CSK to protect the SIP BYE message? | - | - | 3 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

5.6.3.3 Specific message contents

Table 5.6.3.3-1: SIP MESSAGE from the SS (step 1, Table 5.6.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|---|----------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Service | | | TS 24.379 [9] clause 7.3.7 | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Content-Type | | | | |
| media-type | "application/mikey" | | | |
| Message-body | | | | |
| MIKEY message | base64 encoded MIKEY message as described in TS 36.579-1 [2], Table 5.5.9.1-1A | MIKEY message, containing the updated CSK | | |

Table 5.6.3.3-2: SIP INVITE from the UE (step 4, Table 5.6.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 5.6.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.6.3.3-4 | | | |

Table 5.6.3.3-3: SDP in SIP INVITE (Table 5.6.3.3-2)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 5.6.3.3-4: MCPTT-Info in SIP INVITE (Table 5.6.3.3-2)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER |
|---|

Table 5.6.3.3-5: SIP 200 (OK) from the SS (step 4, Table 5.6.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 5.6.3.3-6 | | | |

Table 5.6.3.3-6: SDP in SIP 200 (OK) (Table 5.6.3.3-5)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED |
|---|

5.7 Configuration / Subscription to group dynamic data / De-subscribe

5.7.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { MCPTT User requests to subscribe to group dynamic data for group call ongoing information }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to subscribe to group dynamic data for
group call ongoing information }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { UE (MCPTT Client) receives a SIP NOTIFY message indicating the group call ongoing
information }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message }
}
```

(3)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { MCPTT User requests to de-subscribe from group dynamic data for group call ongoing
information }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to de-subscribe from group dynamic data
for group call ongoing information }
}
```

5.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 9.2.1.6. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 9.2.1.6]

In order to subscribe to changes in per-group dynamic data, the MCPTT client shall generate an initial SIP SUBSCRIBE request specified in 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT group ID of the targeted MCPTT group;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field specified in IETF RFC 6050 [9];
- 4) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field specified in IETF RFC 6665 [26], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client wants to fetch the current state only, shall set the Expires header field specified in IETF RFC 6665 [26], to zero;

- 6) shall include an Accept header field containing the application/pidf+xml MIME type; and
- 7) shall include an application/simple-filter+xml MIME body indicating per-group restrictions of presence event package notification information specified in clause 9.3.2, indicating the MCPTT group ID.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request specified in 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field specified in IETF RFC 6665 [26], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 2) if the MCPTT client wants to de-subscribe, shall set the Expires header field specified in IETF RFC 6665 [26], to zero; and
- 3) shall include an Accept header field containing the application/pidf+xml MIME type.

Upon receiving a SIP NOTIFY request specified in 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26], if the SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-group dynamic data information constructed according to clause 9.3.1, then the MCPTT client shall determine per-group dynamic data of the MCPTT group in the MIME body.

5.7.3 Test description

5.7.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.7.3.2 Test procedure sequence

Table 5.7.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|-----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and without implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | The UE (MCPTT client) performs procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and without implicit floor control according to option a of NOTE 1 in TS 36.579-1 [2] Table 5.3A.1.3-1. | - | - | - | - |
| 3 | Void | - | - | - | - |
| 4 | Make the UE (MCPTT client) subscribe to group dynamic data determination and later notifications. (NOTE 1) | - | - | - | - |
| 5-8 | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to subscribe to group dynamic data for group call ongoing information? | - | - | 1,2 | P |
| 9 | Make the UE (MCPTT client) de-subscribe from group dynamic data notifications. (NOTE 1) | - | - | - | - |
| 10-11 | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to de-subscribe from group dynamic data notifications? | - | - | 3 | P |
| 12-13 | Void | - | - | - | - |
| 14 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 15 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

5.7.3.3 Specific message contents

Table 5.7.3.3-0: SIP INVITE from the UE (step 1, Table 5.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 5.7.3.3-0A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 5.7.3.3-0B | | | |

Table 5.7.3.3-0A: SDP in SIP INVITE (Table 5.7.3.3-0)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER

Table 5.7.3.3-0B: MCPTT-Info in SIP INVITE (Table 5.7.3.3-0)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER

Table 5.7.3.3-0C: SIP 200 (OK) from the SS (step 1, Table 5.7.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 5.7.3.3-0D | | | |

Table 5.7.3.3-0D: SDP in SIP 200 (OK) (Table 5.7.3.3-0C)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER

Table 5.7.3.3-1: SIP SUBSCRIBE from the UE (step 5, Table 5.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition PRESENCE-EVENT | | | | |
|--|---|----------------------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| value | "4294967295" | | TS 24.379 [9] clause 9.2.1.6 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| MIME-part-body | MCPTT-Info as described in Table 5.7.3.3-2 | | | |
| MIME body part | | SIMPLE-FILTER | | |
| MIME-part-headers | | | | |
| MIME-part-body | SIMPLE-FILTER as described in Table 5.7.3.3-3 | | | |

Table 5.7.3.3-2: MCPTT-Info in SIP SUBSCRIBE (Table 5.7.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_A_ID | Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A | | |

Table 5.7.3.3-3: SIMPLE-FILTER in SIP SUBSCRIBE (Table 5.7.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.6-1, condition PER-GROUP

Table 5.7.3.3-4: SIP NOTIFY from the SS (step 7, Table 5.7.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.7.3.3-5 | | | |

Table 5.7.3.3-5: PIDF in SIP NOTIFY (Table 5.7.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1 | | | | |
|---|--|---------|---------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | TS 24.379 [9] clause 9.3.1 | |
| entity attribute | Encrypted URI (NOTE 1) with value set to px_MCPTT_Group_A_ID | | TS 24.379 [9] clause 9.3.1 | |
| tuple | | | TS 24.379 [9] clause 9.3.1 | |
| id attribute | Encrypted URI (NOTE 1) with value set to px_MCPTT_ID_User_A | | TS 24.379 [9] clause 9.3.1 | |
| status | | | TS 24.379 [9] clause 9.3.1 | |
| affiliation | | | TS 24.379 [9] clause 9.3.1 | |
| group | not present | | | |
| client | Encrypted URI (NOTE 1) with value set to the mcptt-client-id as provided by the UE at registration | | TS 24.379 [9] clause 9.3.1 | |
| status | not present | | | |
| expires | Current time plus one hour | | TS 24.379 [9] clause 9.2.2.3.10 | |
| tuple | | | TS 24.379 [9] clause 9.3.1 | |
| id attribute | Encrypted URI (NOTE 1) with value set to px_MCPTT_ID_User_B | | TS 24.379 [9] clause 9.3.1 | |
| status | | | TS 24.379 [9] clause 9.3.1 | |
| affiliation | | | TS 24.379 [9] clause 9.3.1 | |
| group | not present | | | |
| client | Encrypted URI (NOTE 1) with value set to px_MCPTT_Client_B_ID | | TS 24.379 [9] clause 9.3.1 | |
| status | not present | | | |
| expires | Current time plus one hour | | TS 24.379 [9] clause 9.2.2.3.10 | |
| additionalData | | | TS 24.379 [9] clause 9.3.1 | |
| groupCallOngoing | "true" | | TS 24.379 [9] clause 9.3.1 | |
| NOTE 1: Encrypted attribute as described in TS 36.579-1 [2], Table 5.5.13.3-1 | | | | |

Table 5.7.3.3-6: SIP SUBSCRIBE from the UE (step 10, Table 5.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition PRESENCE-EVENT, re_SUBSCRIBE | | | | |
|--|---|----------------------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 9.2.1.6 | |
| value | "0" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| MIME-part-body | MCPTT-Info as described in Table 5.7.3.3-2 | | | |
| MIME body part | | SIMPLE-FILTER | | |
| MIME-part-headers | | | | |
| MIME-part-body | SIMPLE-FILTER as described in Table 5.7.3.3-3 | | | |

5.8 Configuration / Functional Alias / Functional alias status determination / Activate functional alias / Deactivate functional alias

5.8.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { MCPTT User requests to determine the current status of a functional alias and later
notification of status changes of a functional alias }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to determine the current status of a
functional alias and later notification of status changes of a functional alias and responds to the
SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(2)

```
with { UE (MCPTT Client) having already subscribed to determine the status of a functional alias }
ensure that {
  when { MCPTT User requests to activate a functional alias }
  then { UE (MCPTT Client) sends a SIP PUBLISH message to activate a functional alias and responds
to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(3)

```
with { UE (MCPTT Client) having already subscribed to determine the status of a functional alias }
ensure that {
  when { MCPTT User requests to deactivate a functional alias }
  then { UE (MCPTT Client) sends a SIP PUBLISH message to deactivate a functional alias and
responds to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(4)

```
with { UE (MCPTT Client) having already subscribed to determine the status of a functional alias }
ensure that {
  when { MCPTT User requests to de-subscribe from determining the status of a functional alias }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to de-subscribe from determining the
status of a functional alias and responds to the SIP NOTIFY message with a SIP 200 (OK) message }
}
```

5.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 9A.2.1.2, 9A.2.1.3. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 9A.2.1.2]

In order:

- to indicate that an MCPTT user requests to activate one or more functional aliases;
- to indicate that the MCPTT user requests to deactivate one or more functional aliases;
- to refresh indication of an MCPTT user interest in one or more functional aliases due to near expiration of the expiration time of a functional alias with the status set to the "activated" state received in a SIP NOTIFY request in subclause 9A.2.1.3; or
- any combination of the above;

the MCPTT client shall generate a SIP PUBLISH request according to 3GPP TS 24.229 [4], IETF RFC 3903 [37], and IETF RFC 3856 [51].

In the SIP PUBLISH request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the MCPTT client requests to activate one or more functional aliases, shall set the Expires header field according to IETF RFC 3903 [37], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client requests to deactivate one or more functional aliases, shall set the Expires header field according to IETF RFC 3903 [37], to zero; and

NOTE 2: Activation and deactivation of functional alias cannot be performed with the same PUBLISH request.

- 6) shall include an application/pdf+xml MIME body indicating per-user functional alias information according to subclause 9A.3.1. In the MIME body, the MCPTT client:
 - a) shall include all functional aliases where the MCPTT user requests activation for the MCPTT ID;
 - b) shall include the MCPTT client ID of the targeted MCPTT client;
 - c) shall not include the "status" attribute and the "expires" attribute in the <functionalalias> element;
 - d) if the MCPTT client has received an indication that take over of a functional alias is possible and intends to take over a functional alias, shall include a <take-over> child element set to "true"; and
 - e) shall set the <p-id-fa> child element of the <presence> root element to a globally unique value.

The MCPTT client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [4].

[TS 24.379, clause 9A.2.1.3]

NOTE 1: The MCPTT UE also uses this procedure to determine which functional alias have been successfully activated for the MCPTT ID.

In order to discover functional aliases:

- 1) which are activated for the MCPTT user; or
- 2) which another MCPTT user has activated;

the MCPTT client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the targeted MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero;
- 6) shall include an Events header field set to "presence"; and
- 7) shall include an Accept header field containing the application/pidf+xml MIME type.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 2) if the MCPTT client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [26], to zero;
- 3) shall include an Events header field set to "presence"; and
- 4) shall include an Accept header field containing the application/pidf+xml MIME type.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26], if SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-user functional alias information constructed according to subclause 9A.3.1, then the MCPTT client shall determine the status of the MCPTT user for each functional alias in the MIME body. If the <p-id-fa> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request is included, the <p-id-fa> element value indicates the SIP PUBLISH request which triggered sending of the SIP NOTIFY request.

5.8.3 Test description

5.8.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)

- E-UTRA related parameters are set to the default parameters for the basic single cell environment, as defined in TS 36.508 [20] clause 4.4.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

5.8.3.2 Test procedure sequence

Table 5.8.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | <p>Check: Does the UE (MCPTT client) correctly perform procedure 'UE initiated MCPTT functional alias status determination and subscription' as described in TS 36.579-1 [2] Table 5.3A.9.3-1 to determine the current status of a functional alias and to get later notification of status changes of a functional alias?</p> <p>NOTE: The UE (MCPTT client) sends a SIP SUBSCRIBE message and responds to a SIP NOTIFY message and then the RRC connection is released.</p> | - | - | 1 | P |
| 2 | <p>Check: Does the UE (MCPTT client) correctly perform procedure 'UE initiated MCPTT functional alias status change' as described in TS 36.579-1 [2] Table 5.3A.10.3-1 to change the status of a functional alias to "activated"?</p> <p>NOTE: The UE (MCPTT client) sends a SIP PUBLISH message and responds to a SIP NOTIFY message and then the RRC connection is released.</p> | - | - | 2 | P |
| 3 | <p>Make the UE (MCPTT client) request status change of a functional alias to "not activated". (NOTE 1)</p> | - | - | - | - |
| 3A-3E | <p>Check: Does the UE (MCPTT client) correctly perform procedure 'UE initiated MCPTT functional alias status change' as described in TS 36.579-1 [2] Table 5.3A.10.3-1 from step 2a1 onward to change the status of a functional alias to "not activated"?</p> <p>NOTE: The UE (MCPTT client) sends a SIP PUBLISH message and responds to a SIP NOTIFY message and then the RRC connection is released.</p> | - | - | 3 | P |
| 4 | <p>Make the UE (MCPTT client) de-subscribe from functional alias status change notifications. (NOTE 1)</p> | - | - | - | - |
| 5-7 | <p>Check: Does the UE (MCPTT client) correctly perform steps 2a1-4 of procedure 'UE initiated MCPTT functional alias status determination and subscription' as described in TS 36.579-1 [2] Table 5.3A.9.3-1 to de-subscribe from functional alias status change notifications?</p> | - | - | 4 | P |
| - | <p>EXCEPTION: The SS waits 2 seconds before the SS deactivates the dedicated EPS bearer and releases the RRC connection. (NOTE 2)</p> | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The specified wait period of 2s shall ensure that lower layer signalling (TCP) is finished. | | | | | |

5.8.3.3 Specific message contents

Table 5.8.3.3-1: SIP PUBLISH from the UE (step 3B, Table 5.8.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.10.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.3A.10.4-1 | | | | |
|---|--------------|---------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 9A2.1.2 | |
| value | "0" | | | |

Table 5.8.3.3-2: SIP NOTIFY from the SS (step 3D, Table 5.8.3.2-1; step 5, TS 36.579-1 [2] Table 5.3A.10.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.3A.10.4-5 | | | | |
|---|--------------------------------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 5.8.3.3-3 | | | |

Table 5.8.3.3-3: PIDF in SIP NOTIFY (Table 5.8.3.3-2)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition NOTIFY_FOR_PUBLISH (NOTE 1) | | | | |
|--|--|--|--|--|
| NOTE 1: PIDF contains tuple with empty <status> element (i.e. there are no <functionalAlias> entries at all) and <p-id-fa> element with value as received in the previous SIP PUBLISH. | | | | |

Table 5.8.3.3-4: SIP SUBSCRIBE from the UE (step 6, Table 5.8.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.9.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.3A.9.4-1 | | | | |
|--|--------------|---------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | TS 24.379 [9] clause 9A2.1.3 | |
| value | "0" | | | |

6 MCPTT Client on-network operation

6.1 Group Calls

6.1.1 Pre-arranged Group Call

6.1.1.1 On-network / On-demand Pre-arranged Group Call / Automatic Commencement Mode / End-to-end communication security / Floor Control / Upgrade to Emergency Group Call / Cancel Emergency State / Upgrade to Imminent Peril Group Call / Cancel Imminent Peril State / Client Originated (CO)

6.1.1.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
```

```

when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
requesting force of Automatic Commencement Mode at the invited MCPTT client(s) and implicit floor
control }
  then { UE (MCPTT Client) requests On-demand Automatic Commencement Mode Pre-arranged Group Call
establishment with implicit floor control by sending a SIP INVITE message, and, after indication
from the MCPTT Server that the call was established and receiving a Floor Granted message, notifies
the user }
}

```

(2)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
    then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server (Floor Request
during a talk burst, Floor granting/release, Floor idle, Floor deny, Floor taken/revoked) }
}

```

(3)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the SS (MCPTT Server) needs to terminate the ongoing MCPTT Group Call and the SS (MCPTT
Server) sends a SIP BYE request }
    then { UE (MCPTT Client) responds with a SIP 200 (OK) and leaves the MCPTT session }
}

```

(4)

```

with { UE (MCPTT Client) having established an On-demand Pre-arranged Group Call with Automatic
Commencement Mode and the MCPTT User being authorised for initiating an MCPTT Emergency Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to upgrade the ongoing MCPTT Group Call to an MCPTT
Emergency Group Call with floor control }
    then { UE (MCPTT Client) sends a SIP re-INVITE request and upon receipt of a SIP 2xx response
considers the call as being upgraded to Emergency Group Call (emergency group call state = "MEGC 3:
emergency-call-granted") }
}

```

(5)

```

with { UE (MCPTT Client) having upgraded to an Emergency Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
    then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server }
}

```

(6)

```

with { UE (MCPTT Client) having upgraded an On-demand Pre-arranged Group Call with Automatic
Commencement Mode to an Emergency Group Call and the MCPTT User being authorised for cancelling an
MCPTT Emergency state (MCPTT in-progress emergency cancel) }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to cancel the ongoing MCPTT Emergency state }
    then { UE (MCPTT Client) sends a SIP re-INVITE request and upon receipt of a SIP 2xx response
considers the emergency condition cancelled }
}

```

(7)

```

with { UE (MCPTT Client) having established an On-demand Pre-arranged Group Call with Automatic
Commencement Mode and the MCPTT User being authorised for initiating an MCPTT Imminent Peril Group
Call }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to upgrade the ongoing MCPTT Group Call to an MCPTT
Imminent Peril Group Call with floor control }
    then { UE (MCPTT Client) sends a SIP re-INVITE request and upon receipt of a SIP 2xx response
considers the call as being upgraded to Imminent Peril Group Call (imminent peril group call state =
"MIG 2: in-progress") }
}

```

(8)

```

with { UE (MCPTT Client) having upgraded to an Imminent Peril Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
    then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server }
}

```

(9)

```

with { UE (MCPTT Client) having upgraded an On-demand Pre-arranged Group Call with Automatic
Commencement Mode to an Imminent Peril Group Call and the MCPTT User being authorised for cancelling
an MCPTT Imminent Peril state (MCPTT in-progress imminent peril cancel) }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to cancel the ongoing MCPTT Imminent Peril state }
    then { UE (MCPTT Client) sends a SIP re-INVITE request and upon receipt of a SIP 2xx response
considers the imminent peril condition cancelled }
}

```

(10)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Group Call }
    then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

(11)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode and pc_MCPTT_FloorRequestQueueing = "true" }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
    then { UE (MCPTT Client) respects the floor control queue handling imposed by the MCPTT Server
(Floor request queued, Floor queue position request and Floor queue position info) }
}

```

6.1.1.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.1, 6.2.1, 6.2.3.1.2, 6.4, 6.5, 6.2.6, 10.1.1.2.1.3, 10.1.1.2.1.4, 6.2.8.1.3, 10.1.1.2.1.5, 6.2.8.1.11, 6.2.4.1, TS 24.380, clauses 6.2.4.5.3, 6.2.4.6.4, 6.2.4.3.5, 6.2.4.4.2, 6.2.4.5.4, 6.2.4.6.5, 6.2.4.4.4, 6.2.4.4.9, 6.2.4.9.9, 6.2.4.9.6, 6.2.4.9.4. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT emergency state is already set or the MCPTT client emergency group state for this group is set to "MEG 2: in-progress", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 3: confirming" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.381 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

- 15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;
- 16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-

requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4; and

- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and

- b) the codec(s) and media parameters and attributes with the following clarification:

- i) if the MCPTT client is initiating a call to a group identity;
- ii) if the <preferred-voice-encodings> element is present in the group document retrieved by the group management client as specified in 3GPP TS 24.381 [31] containing an <encoding> element with a "name" attribute; and
- iii) if the MCPTT client supports the encoding name indicated in the value of the "name" attribute;

then the MCPTT client:

- i) shall insert the value of the "name" attribute in the <encoding name> field of the "a=rtpmap" attribute as defined in IETF RFC 4566 [12]; and

- c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];

- 3) if floor control shall be used during the session, shall include an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12 for a media-floor control entity, consisting of:

- a) the port number for the media-floor control entity selected as specified in 3GPP TS 24.380 [5]; and

- b) the 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14; and

- 4) if end-to-end security is required for a private call and the SDP offer is not for establishing a pre-established session, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 6.2.3.1.2]

When performing the automatic commencement mode procedures, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1 with the following clarification:

- The MCPTT client may include a P-Answer-State header field with the value "Confirmed" as specified in IETF RFC 4964 [34] in the SIP 200 (OK) response.

[TS 24.379, clause 6.4]

An initial SIP INVITE request fulfilling the following criteria shall be regarded by the MCPTT server as an implicit floor request when the MCPTT client:

- 1) initiates an MCPTT speech session or initiates a pre-established session; and
- 2) includes the "mc_implicit_request" 'fmtpt' attribute in the associated UDP stream for the floor control in the SDP offer/answer as specified in 3GPP TS 24.380 [5] clause 12.

A SIP re-INVITE request fulfilling the following criteria shall be regarded by the MCPTT server as an implicit floor request when the MCPTT client:

- 1) performs an upgrade of:
 - a) an MCPTT group call to an emergency MCPTT group call;
 - b) an MCPTT private call to an emergency MCPTT private call; or
 - c) an MCPTT group call to an imminent peril MCPTT group call; and
- 2) includes the "mc_implicit_request" 'fmtpt' attribute in the associated UDP stream for the floor control in the SDP offer/answer as specified in 3GPP TS 24.380 [5] clause 12.

In all other cases the SIP (re-)INVITE request shall be regarded as received without an implicit floor request.

[TS 24.379, clause 6.5]

The MCPTT client and the MCPTT server shall support several MIME bodies in SIP request and SIP responses.

When the MCPTT client or the MCPTT server sends a SIP message and the SIP message contains more than one MIME body, the MCPTT client or the MCPTT server:

- 1) shall, as specified in IETF RFC 2046 [21], include one Content-Type header field with the value set to multipart/mixed and with a boundary delimiter parameter set to any chosen value;
- 2) for each MIME body:
 - a) shall insert the boundary delimiter;
 - b) shall insert the Content-Type header field with the MIME type of the MIME body; and
 - c) shall insert the content of the MIME body;
- 3) shall insert a final boundary delimiter; and
- 4) if an SDP offer or an SDP answer is one of the MIME bodies, shall insert the application/sdp MIME body as the first MIME body.

NOTE: The reason for inserting the application/sdp MIME body as the first body is that if a functional entity in the underlying SIP core does not understand multiple MIME bodies, the functional entity will ignore all MIME bodies with the exception of the first MIME body. The order of multiple MCPTT application MIME bodies in a SIP message is irrelevant.

When the MCPTT client or the MCPTT server sends a SIP message and the SIP message contains only one MIME body, the MCPTT client or the MCPTT server:

- 1) shall include a Content-Type header field set to the MIME type of the MIME body; and
- 2) shall insert the content of the MIME body.

[TS 24.380, clause 6.2.4.5.3]

Upon receiving an indication from the user to release the permission to send RTP media, the floor participant:

1. shall send a Floor Release message towards the floor control server The Floor Release message:
 - a. may include the first bit in the subtype of the Floor Release message set to '1' (acknowledgement is required) as specified in subclause 8.2.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

- b. if the session is a broadcast call and if the session was established as a normal call, shall include the Floor Indicator with the A-bit set to '1' (Normal call); and
 - c. if the Floor Granted message included the G-bit set to '1' (Dual floor), shall include the Floor Indicator with the G-bit set to '1' (Dual floor);
2. shall remove the indication that the participant is overriding without revoke if this indication is stored;
3. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
4. shall enter the 'U: pending Release' state.

[TS 24.380, Clause 6.2.4.6.4]

Upon receiving a Floor Idle message, the floor participant:

1. if the first bit in the subtype of the Floor Idle message to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '5' (Floor Idle); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide a floor idle notification to the MCPTT user;
3. if the Floor Indicator field is included and the B-bit set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. shall stop timer T100 (Floor Release);
5. if the session is not a broadcast group call or if the A-bit in the Floor Indicator field is set to '1' (Normal call), shall enter the 'U: has no permission' state; and
6. if the session was initiated as a broadcast group call:
 - a. shall indicate to the MCPTT client the media transmission is completed; and
 - b. shall enter the 'Releasing' state.

[TS 24.380, clause 6.2.4.3.5]

Upon receiving an indication from the user to request permission to send media, the floor participant:

1. shall send the Floor Request message toward the floor control server; The Floor Request message:
 - a. if a different priority than the normal priority is required, shall include the Floor Priority field with the priority not higher than negotiated with the floor control server as specified in subclause 14.3.3; and
 - b. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1; and
3. shall enter the 'U: pending Request' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in an SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.4]

Upon receiving a Floor Revoke message, the floor participant:

1. shall inform the user that the permission to send RTP media is being revoked;
2. may give information to the user about the reason for revoking the permission to send media;
3. shall request the media in the MCPTT client discard any remaining buffered RTP media packets and to stop forwarding of encoded voice to the MCPTT server;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor):
 - a. shall send a Floor Release message. In the Floor Release message:
 - i. shall include the Floor Indicator with the G-bit set to '1' (Dual floor); and
 - ii. may set the first bit in the subtype to '1' (Acknowledgment is required) as described in subclause 8.3.2;
5. if the G-bit in the Floor Indicator is set to '0' (not Dual floor):
 - a. shall send a Floor Release message. In the Floor Release message:
 - i. shall include the Floor Indicator with the G-bit set to '0' (not Dual floor); and
 - ii. may set the first bit in the subtype to '1' (Acknowledgment is required) as described in subclause 8.3.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

6. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
7. shall enter the 'U: pending Release' state.

[TS 24.380, Clause 6.2.4.6.5]

Upon receiving a Floor Taken message, the floor participant:

1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:

- a. shall include the Message Type field set to '2' (Floor Taken); and
- b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide floor taken notification to the user;
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. should start the optional timer T103 (End of RTP media);
5. shall stop timer T100 (Floor Release); and
6. shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.4]

Upon receiving a Floor Deny message, the floor participant:

1. if the first bit in the subtype of the Floor Deny message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '3' (Floor Deny); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor deny notification to the user;
3. may display the floor deny reason to the user using information in the Reject Cause field;
4. shall stop timer T101 (Floor Request); and
5. shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.9]

Upon receiving a Floor Queue Position Info message, the floor participant:

1. if the first bit in the subtype of the Floor Queue Position Info message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '9' (Floor Queue Position Info); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor request queued response notification to the MCPTT user;
3. may provide the queue position and priority to the MCPTT user; and
4. shall enter the 'U: queued' state.

[TS 24.380, clause 6.2.4.9.9]

Upon receipt of an indication from the MCPTT client to request the queue position, the floor participant:

1. shall send the Floor Queue Position Request message;
2. shall start timer T104 (Floor Queue Position Request) and initialize counter C104 (Floor Queue Position Request) to 1; and
3. remain in the 'U: queued' state.

[TS 24.380, clause 6.2.4.9.6]

Upon receiving an indication from the MCPTT user to release the queued floor request, the floor participant:

1. shall send a Floor Release message: The Floor Release message:
 - a. may include the Floor Indicator field changing a broadcast group call to a normal call;

2. may set the first bit in the subtype of the Floor Release message to '1' (Acknowledgment is required) as described in subclause 8.3.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

3. shall start timer T100 (Floor Release) and initialise counter C10 (Floor Release) to 1;
4. shall stop timer T104 (Floor Queue Position Request), if running; and
5. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.9.4]

Upon receiving a Floor Granted message, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide a floor granted notification to the MCPTT user;
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. shall stop timer T104 (Floor Queue Position Request), if running;
5. shall start timer T132 (Queued granted user action);
6. shall indicate the user that the floor is granted; and
7. shall remain in the 'U: queued' state.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 10.1.1.2.1.3]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to upgrade the MCPTT group session to an emergency condition or an imminent peril condition on an MCPTT prearranged group, the MCPTT client shall generate a SIP re-INVITE request as specified in 3GPP TS 24.229 [4], with the clarifications given below.

- 1) if the MCPTT user is requesting to upgrade the MCPTT group session to an in-progress emergency group state and this is an unauthorised request for an MCPTT emergency call as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to upgrade the MCPTT group session to an in-progress emergency group state; and
 - b) shall skip the remaining steps of the current subclause;
- 2) if the MCPTT user is requesting to upgrade the MCPTT group session to an in-progress imminent peril state and this is an unauthorised request for an MCPTT imminent peril group call as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to upgrade the MCPTT group session to an in-progress imminent peril group state; and

- b) shall skip the remaining steps of the current subclause;
- 3) if the MCPTT user has requested to upgrade the MCPTT group session to an MCPTT emergency call, the MCPTT client:
 - a) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.1;
 - b) if an indication of an MCPTT emergency alert is to be included, shall perform the procedures specified in subclause 6.2.9.1 for the MCPTT emergency alert trigger; and
 - c) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2.
- 4) if the MCPTT user has requested to upgrade the MCPTT group session to an MCPTT imminent peril call, the MCPTT client:
 - a) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.9; and
 - b) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 5) if the SIP re-INVITE request is to be sent within an on-demand session, shall include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 6) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session;

NOTE: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 7) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 8) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall perform the actions specified in subclause 6.2.8.1.4.

[TS 24.379, clause 10.1.1.2.1.4]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to cancel the in-progress emergency condition on a prearranged MCPTT group, the MCPTT client shall generate a SIP re-INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user is not authorised to cancel the in-progress emergency group state of the MCPTT group as determined by the procedures of subclause 6.2.8.1.7, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to cancel the in-progress emergency group state of the MCPTT group; and
 - b) shall skip the remaining steps of the current subclause;
- 2) shall, if the MCPTT user is cancelling an in-progress emergency condition and optionally an MCPTT emergency alert originated by the MCPTT user, include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.3;

- 3) shall, if the MCPTT user is cancelling an in-progress emergency condition and an MCPTT emergency alert originated by another MCPTT user, include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.14;
- 4) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged"; and
 - b) the <mcptt-request-uri> element set to the group identity;

NOTE 1: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

- 5) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP re-INVITE request according to IETF RFC 3840 [16];
- 6) if the SIP re-INVITE request is to be sent within an on-demand session, shall include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 7) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session;

NOTE 2: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 8) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2; and
- 9) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) shall set the MCPTT emergency group state of the group to "MEG 1: no-emergency";
- 3) shall set the MCPTT emergency group call state of the group to "MEGC 1: emergency-gc-capable"; and
- 4) if the MCPTT emergency alert state is set to "MEA 4: Emergency-alert-cancel-pending", the sent SIP re-INVITE request did not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body and the SIP 2xx response to the SIP request for a priority group call does not contain a Warning header field as specified in subclause 4.4 with the warning text containing the mcptt-warn-code set to "149", shall set the MCPTT emergency alert state to "MEA 1: no-alert".

[TS 24.379, clause 6.2.8.1.3]

This subclause is referenced from other procedures.

If the MCPTT emergency group call state is set to "MEGC 3: emergency-call-granted" and the MCPTT emergency alert state is set to "MEA 1: no-alert", the MCPTT client shall generate a SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given below.

NOTE 1: This procedure assumes that the calling procedure has verified that the MCPTT user has made an authorised request for cancelling MCPTT in-progress emergency group state of the group.

The MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <emergency-ind> element set to "false";
- 2) shall clear the MCPTT emergency state; and
- 3) shall set MCPTT emergency group state of the MCPTT group to "MEG 3: cancel-pending"

NOTE 2: This is the case of an MCPTT user who has initiated an MCPTT emergency group call and wants to cancel it.

If the MCPTT emergency group call state is set to "MEGC 3: emergency-call-granted" and the MCPTT emergency alert state is set to a value other than "MEA 1: no-alert" and the MCPTT user has indicated only the MCPTT emergency group call should be cancelled, the MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <emergency-ind> element set to "false"; and
- 2) shall set the MCPTT emergency group state of the MCPTT group to "MEG 3: cancel-pending".

NOTE 3: This is the case of an MCPTT user has initiated both an MCPTT emergency group call and an MCPTT emergency alert and wishes to only cancel the MCPTT emergency group call. This leaves the MCPTT emergency state set.

If the MCPTT emergency group call state is set to "MEGC 3: emergency-call-granted" and the MCPTT emergency alert state is set to a value other than "MEA 1: no-alert" and the MCPTT user has indicated that the MCPTT emergency alert on the MCPTT group should be cancelled in addition to the MCPTT emergency group call, the MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <emergency-ind> element set to "false";
- 2) shall if this is an authorised request to cancel an MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6:
 - a) include in the application/vnd.3gpp.mcptt-info+xml MIME body an <alert-ind> element set to "false";
 - b) set the MCPTT emergency alert state to "MEA 4: Emergency-alert-cancel-pending"; and
 - c) clear the MCPTT emergency state;
- 3) should, if this is not an authorised request to cancel an MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6, indicate to the MCPTT user that they are not authorised to cancel the MCPTT emergency alert; and
- 4) shall set the MCPTT emergency group state of the MCPTT group to "MEG 3: cancel-pending".

NOTE 4: This is the case of an MCPTT user that has initiated both an MCPTT emergency group call and an MCPTT emergency alert and wishes to cancel both.

[TS 24.379, clause 10.1.1.2.1.5]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to cancel the in-progress imminent peril condition on a prearranged MCPTT group, the MCPTT client shall generate a SIP re-INVITE request by following the procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user is not authorised to cancel the in-progress imminent peril group state of the MCPTT group as determined by the procedures of subclause 6.2.8.1.10, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to cancel the in-progress imminent peril group state of the MCPTT group; and
 - b) shall skip the remaining steps of the current subclause;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.11; and
- 3) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 4) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "prearranged"; and
- b) the <mcptt-request-uri> element set to the group identity;

NOTE 1: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP re-INVITE request that is sent by the originating participating MCPTT function.

- 5) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP re-INVITE request according to IETF RFC 3840 [16];
- 6) if the SIP re-INVITE request is to be sent within an on-demand session, shall include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 7) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and

NOTE 2: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 8) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) shall set the MCPTT imminent peril group state of the group to "MIG 1: no-imminent-peril"; and
- 3) shall set the MCPTT imminent peril group call state of the group to "MIGC 1: imminent-peril-gc-capable".

[TS 24.379, clause 6.2.8.1.11]

This subclause is referenced from other procedures.

If the MCPTT imminent peril group call state is set to "MIGC 3: imminent-peril-call-granted" or the MCPTT imminent peril group state of the MCPTT group is set to "MIG 2: in-progress", the MCPTT client shall generate a SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given below.

NOTE 1: This procedure assumes that the calling procedure has verified that the MCPTT user has made an authorised request for cancelling the in-progress imminent peril group state of the group.

The MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <imminentperil-ind> element set to "false"; and
- 2) shall set MCPTT imminent peril group state of the MCPTT group to "MIG 4: cancel-pending".

NOTE 2: This is the case of an MCPTT user who has initiated an MCPTT imminent peril group call and wants to cancel it, or another authorised member of the group who wishes to cancel the in-progress imminent peril state of the group.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

6.1.1.1.3 Test description

6.1.1.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.1.3.2 Test procedure sequence

Table 6.1.1.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---------|---|------------------|--------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 8 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 10a1-11 | Void | - | - | - | - |
| 12 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 14-16 | Void | - | - | - | - |
| 17 | The SS overrides the UE (MCPTT client) and grants the floor to a higher priority client. | - | - | - | - |
| 18 | The SS sends a Floor Revoke message with Reject Cause #4 - Media Burst pre-empted. | <-- | Floor Revoke | - | - |
| 18A | Void | - | - | - | - |
| - | EXCEPTION: In parallel to the events described in step 19, the step specified in Table 6.1.1.1.3.2-2 takes place. | - | - | - | - |
| 19 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1? | - | - | 2 | P |
| 20 | Void | - | - | - | - |
| 21 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 22 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Deny' as described in TS 36.579-1 [2] Table 5.3A.14.3-1? | - | - | 2 | P |
| 23-24 | Void | - | - | - | - |
| - | EXCEPTION: Steps 25a1 - 25b2 describe behaviour that depends on pc_MCPTT_FloorRequestQueueing. The "lower case letter" identifies a step sequence that takes place when one or the other is the case | - | - | - | - |
| 25a1 | IF pc_MCPTT_FloorRequestQueueing THEN: Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |

| | | | | | |
|---------|---|-----|---------------|----|---|
| 25a2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Queue Position Info' as described in TS 36.579-1 [2] Table 5.3A.12.3-1? | - | - | 11 | P |
| 25a3 | Check: Does the UE (MCPTT client) provide floor request queued response notification to the user? (NOTE 1) | - | - | 11 | P |
| 25a4 | Make the UE (MCPTT client) request the floor queue position. (NOTE 1) | - | - | - | - |
| 25a5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Queuing Position Request' as described in TS 36.579-1 [2] Table 5.3A.13.3-1? | - | - | 11 | P |
| 25a6 | Check: Does the UE (MCPTT client) provide floor queue position information to the user? (NOTE 1) | - | - | 11 | P |
| 25a7 | Make the UE (MCPTT client) cancel the floor request. (NOTE 1) | - | - | - | - |
| 25a8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1 to cancel the queue position? | - | - | 11 | P |
| 25a9 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 25a10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Queue Position Info' as described in TS 36.579-1 [2] Table 5.3A.12.3-1? | - | - | 11 | P |
| 25a11 | Check: Does the UE (MCPTT client) provide floor request queued response notification to the user? (NOTE 1) | - | - | 11 | P |
| 25a12 | The SS sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 25a13 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 11 | P |
| 25b1 | ELSE IF NOT pc_MCPTT_FloorRequestQueueing THEN: Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 25b2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 26-40 | Void | - | - | - | - |
| 41 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 42 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 43a1-44 | Void | - | - | - | - |
| 45 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 to release the call? | - | - | 3 | P |
| 46 | Void | - | - | - | - |

| | | | | | |
|---------|---|---|---|------|---|
| 47 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 48 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 49-52 | Void | - | - | - | - |
| 53 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | - | - |
| 54 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 55 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 56a1-58 | Void | - | - | - | - |
| 59 | Make the UE (MCPTT client) request upgrade of the call to an emergency group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 60 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to upgrade the call to an emergency call with implicit floor request? | - | - | 4, 5 | P |
| 61-61C | Void | - | - | - | - |
| 61D | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 5 | P |
| 62 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 63 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 5 | P |
| 64a1-65 | Void | - | - | - | - |
| 66 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 67 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 5 | P |
| 68-70 | Void | - | - | - | - |
| 71 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 72 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 5 | P |
| 73a1-74 | Void | - | - | - | - |
| 75 | Make the UE (MCPTT client) request downgrade of the call to a normal group call. (NOTE 1) | - | - | - | - |

| | | | | | |
|---------|--|---|---|------|---|
| 76 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to cancel the emergency state without implicit floor control? | - | - | 5, 6 | P |
| 77 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 77A | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 5 | P |
| 77B-D | Void | - | - | - | - |
| 78 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 79 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 5 | P |
| 80a1-81 | Void | - | - | - | - |
| 82 | Make the UE (MCPTT client) request upgrade of the call to an imminent peril group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 83 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' described in TS 36.579-1 [2] Table 5.3A.6.3-1 to upgrade the call to an imminent peril call with implicit floor request? | - | - | 7, 8 | P |
| 84-84C | Void | - | - | - | - |
| 84D | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 8 | P |
| 85 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 86 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 8 | P |
| 87a1-88 | Void | - | - | - | - |
| 89 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 90 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 8 | P |
| 91-93 | Void | - | - | - | - |
| 94 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 95 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 8 | P |
| 96a1-97 | Void | - | - | - | - |
| 98 | Make the UE (MCPTT client) request downgrade of the imminent peril call to a normal group call. (NOTE 1) | - | - | - | - |

| | | | | | |
|--|--|---|---|------|---|
| 99 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' described in TS 36.579-1 [2] Table 5.3A.6.3-1 to cancel the imminent peril state without implicit floor control? | - | - | 8, 9 | P |
| 100 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 100A | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 8 | P |
| 100B-D | Void | - | - | - | - |
| 101 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 102 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 8 | P |
| 103a 1-104 | Void | - | - | - | - |
| 105 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 106 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 10 | P |
| 107 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

Table 6.1.1.1.3.2-2: Parallel Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) notify the user that the permission to send RTP media is being revoked? (NOTE 1 in Table 6.1.1.1.3.2-1) | - | - | 2 | P |

6.1.1.1.3.3 Specific message contents

Table 6.1.1.1.3.3-1: SIP INVITE from the UE (steps 2, 48, Table 6.1.1.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.1.3.3-2 | | | |

Table 6.1.1.1.3.3-1A: SDP in SIP INVITE (Table 6.1.1.1.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.1.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.1.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFER |
|---|

Table 6.1.1.1.3.3-3: Void**Table 6.1.1.1.3.3-3A: SIP 200 (OK) from the SS (steps 2, 48, Table 6.1.1.1.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.1.3.3-3B | | | |

Table 6.1.1.1.3.3-3B: SDP in SIP 200 (OK) (Table 6.1.1.1.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED |
|---|

Table 6.1.1.1.3.3-4: Void**Table 6.1.1.1.3.3-4A: SIP BYE from the SS (step 45, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|

Table 6.1.1.1.3.3-5: SIP INVITE from the UE (step 60, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition EMERGENCY-CALL, re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-6A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.1.3.3-6B | | | |

Table 6.1.1.1.3.3-6: Void**Table 6.1.1.1.3.3-6A: SDP in SIP INVITE (Table 6.1.1.1.3.3-5)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.1.3.3-6B: MCPTT-Info in SIP INVITE (Table 6.1.1.1.3.3-5)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, EMERGENCY-CALL, INVITE_REFER |
|---|

Table 6.1.1.1.3.3-7: Void

Table 6.1.1.1.3.3-7B: SIP 200 (OK) from the SS (steps 60, 83, Table 6.1.1.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.1.3.3-7C | | | |

Table 6.1.1.1.3.3-7C: SDP in SIP 200 (OK) (Table 6.1.1.1.3.3-7B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.1.3.3-8: SIP INVITE from the UE (step 76, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-8A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.1.3.3-9 | | | |

Table 6.1.1.1.3.3-8A: SDP in SIP INVITE (Table 6.1.1.1.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.1.1.3.3-9: MCPTT-Info in SIP INVITE (Table 6.1.1.1.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.1.1.3.3-9A: SIP 200 (OK) from the SS (steps 76, 99, Table 6.1.1.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.1.3.3-9B | | | |

Table 6.1.1.1.3.3-9B: SDP in SIP 200 (OK) (Table 6.1.1.1.3.3-9A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.1.3.3-10: SIP INVITE from the UE (step 83, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition IMPERIL-CALL, re_INVITE | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-10A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.1.3.3-11 | | | |

Table 6.1.1.1.3.3-10A: SDP in SIP INVITE (Table 6.1.1.1.3.3-10)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, IMPLICIT_GRANT_REQUESTED | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.1.1.3.3-11: MCPTT-Info in SIP INVITE (Table 6.1.1.1.3.3-10)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER, IMPERIL-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.1.3.3-12: SIP-INVITE from the UE (step 99, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-headers | | | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-8A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.1.3.3-13 | | | |

Table 6.1.1.1.3.3-13: MCPTT-Info in SIP INVITE (Table 6.1.1.1.3.3-12)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| imminentperil-ind | Encrypted <imminentperil-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.1.1.3.3-14: Void

Table 6.1.1.1.3.3-15: Floor Request (step 67, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition EMERGENCY-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.1.3.3-16: Floor Request (step 90, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition IMPERIL-CALL

Table 6.1.1.1.3.3-17..18: Void

Table 6.1.1.1.3.3-19: Floor Release (steps 63, 72, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition EMERGENCY-CALL

Table 6.1.1.1.3.3-20: Floor Release (steps 86, 95, Table 6.1.1.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition IMPERIL-CALL

Table 6.1.1.1.3.3-21: Void

Table 6.1.1.1.3.3-22: Floor Idle (steps 63, 72, Table 6.1.1.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY-CALL

Table 6.1.1.1.3.3-23: Floor Idle (steps 86, 95, Table 6.1.1.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition IMPERIL-CALL

Table 6.1.1.1.3.3-24: Void

Table 6.1.1.1.3.3-25: Floor Granted (steps 60, 67, Table 6.1.1.1.3.2-1; step 5a1, TS 36.579-1 [2] Table 5.3A.6.3-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY-CALL, ACK

Table 6.1.1.1.3.3-26: Floor Granted (steps 83, 90, Table 6.1.1.1.3.2-1; step 5, TS 36.579-1 [2] Table 5.3A.6.3-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition IMPERIL-CALL, ACK

Table 6.1.1.1.3.3-27..29: Void

Table 6.1.1.1.3.3-30: Floor Deny (step 22, Table 6.1.1.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.14.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1

| Information Element | Value/remark | Comment | Condition |
|---------------------|----------------|---------------------------|-----------|
| Reject Cause | | | |
| Reject Cause | "255" | Cause #255 - Other reason | |
| Reject Phrase | "Other reason" | | |

Table 6.1.1.1.3.3-31..32: Void

6.1.1.2 On-network / On-demand Pre-arranged Group Call / Automatic Commencement Mode / Floor Control / Upgrade to Emergency Group Call / Cancel Emergency State / Upgrade to Imminent Peril Group Call / Cancel Imminent Peril State / Client Terminated (CT)

6.1.1.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT }
ensure that {
  when { the SS (MCPTT Server) initiates an On-demand Pre-arranged group call with Automatic
  Commencement Mode and implicit floor control }
  then { UE (MCPTT Client) responds by sending a SIP 200 (OK) message and after indication from
  the MCPTT Server that the call was established notifies the user }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing MCPTT On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server (Floor Request
during a talk burst, Floor granting/release, Floor idle, Floor deny, Floor taken/revoked) }
}
```

(3)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}
```

(4)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the SS (MCPTT Server) upgrades the ongoing MCPTT Group Call to an MCPTT Emergency Group
Call with floor control }
  then { UE (MCPTT Client) responds to the SIP re-INVITE request with a SIP 200 (OK) response and
considers the call as being upgraded to an Emergency Group Call (emergency group call state = "MEGC
3: emergency-call-granted") }
}
```

(5)

```
with { UE (MCPTT Client) in an upgraded Emergency Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server }
}
```

(6)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode which was upgraded to an Emergency Group Call }
ensure that {
  when { the SS (MCPTT Server) cancels the ongoing MCPTT Emergency state }
  then { UE (MCPTT Client) responds to the SIP re-INVITE request with a SIP 200 (OK) and considers
the emergency condition cancelled }
}
```

(7)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the SS (MCPTT Server) upgrades the ongoing MCPTT Group Call to an MCPTT Imminent Peril
Group Call with floor control }
  then { UE (MCPTT Client) responds to the SIP re-INVITE request with a SIP 200 (OK) response and
considers the call as being upgraded to an cImminent Peril Group Call (imminent peril group call
state = "MIG 2: in-progress") }
}

```

(8)

```

with { UE (MCPTT Client) in an upgraded Imminent Peril Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server }
}

```

(9)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode which was upgraded to an Imminent Peril Group Call }
ensure that {
  when { the SS (MCPTT Server) cancels the ongoing MCPTT Imminent Peril state }
  then { UE (MCPTT Client) responds to the SIP re-INVITE request with a SIP 200 (OK) and considers
the imminent peril condition cancelled }
}

```

(10)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the SS (MCPTT Server) needs to terminate the ongoing MCPTT Group Call }
  then { the SS (MCPTT Server) sends a SIP BYE request and the UE (MCPTT Client) responds with a
SIP 200 (OK) and leaves the MCPTT session }
}

```

(11)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode and pc_MCPTT_FloorRequestQueueing = "true" }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control queue handling imposed by the MCPTT Server
(Floor request queued, Floor queue position request and Floor queue position info) }
}

```

6.1.1.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.1.1.2.1.2, 6.2.2, 6.2.3.1.2, 6.2.6, 10.1.1.2.1.6, 6.2.5.1, 10.1.1.2.3.1, 10.1.1.2.3.3 and TS 24.380, clauses 6.2.4.5.3, 6.2.4.3.5, 6.2.4.4.2, 6.2.4.5.4, 6.2.4.4.4, 6.2.4.4.9, 6.2.4.9.9, 6.2.4.9.6, 6.2.4.9.4. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.2]

In the procedures in this subclause:

- 1) emergency indication in an incoming SIP INVITE request refers to the <emergency-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
- 2) imminent peril indication in an incoming SIP INVITE request refers to the <imminentperil-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body.

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

- 1) may reject the SIP INVITE request if either of the following conditions are met:
 - a) MCPTT client does not have enough resources to handle the call; or
 - b) any other reason outside the scope of this specification;and skip the rest of the steps;
- 2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in subclause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

NOTE: If the SIP INVITE request contains an emergency indication or imminent peril indication, the MCPTT client can by means beyond the scope of the present document choose to accept the request.

- 3) shall check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and
 - iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
 - b) shall set the MCPTT emergency group state to "MEG 2: in-progress";
 - c) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - d) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable"; otherwise
- 5) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.2 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or

- b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;
- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
- a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
- 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and
- 4) if included in the SDP offer, shall include the media-level section of the offered media-floor control entity consisting of:
 - a) an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12; and
 - b) 'fntp' attributes as specified in 3GPP TS 24.380 [5] clause 14.

[TS 24.379, clause 6.2.3.1.2]

When performing the automatic commencement mode procedures, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1 with the following clarification:

- The MCPTT client may include a P-Answer-State header field with the value "Confirmed" as specified in IETF RFC 4964 [34] in the SIP 200 (OK) response.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 10.1.1.2.1.6]

This subclause covers both on-demand session and pre-established sessions.

Upon receipt of a SIP re-INVITE request the MCPTT client:

- 1) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user the MCPTT ID of the originator of the MCPTT emergency group call and an indication that this is an MCPTT emergency group call;
 - b) if the <mcpttinfo> element containing the <mcptt-Params> element contains an <alert-ind> element set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
 - c) shall set the MCPTT emergency group state to "MEG 2: in-progress";
 - d) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - e) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable";
- 2) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user the MCPTT ID of the originator of the MCPTT imminent peril group call and an indication that this is an MCPTT imminent peril group call; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 3) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "false":
 - a) should display to the MCPTT user the MCPTT ID of the MCPTT user cancelling the MCPTT emergency group call;
 - b) if the <mcpttinfo> element containing the <mcptt-Params> element contains an <alert-ind> element set to "false":
 - i) should display to the MCPTT user an indication of the MCPTT emergency alert cancellation and the MCPTT ID of the MCPTT user cancelling the MCPTT emergency alert; and
 - ii) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body including an <originated-by> element:
 - A) should display to the MCPTT user the MCPTT ID contained in the <originated-by> element of the MCPTT user that originated the MCPTT emergency alert; and
 - B) if the MCPTT ID contained in the <originated-by> element is the MCPTT ID of the receiving MCPTT user shall set the MCPTT emergency alert state to "MEA 1: no-alert";
 - c) shall set the MCPTT emergency group state to "MEG 1: no-emergency"; and
 - d) if the MCPTT emergency group call state of the group is set to "MEGC 3: emergency-call-granted", shall set the MCPTT emergency group call state of the group to "MEGC 1: emergency-gc-capable";
- 4) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "false":
 - a) should display to the MCPTT user the MCPTT ID of the MCPTT user cancelling the MCPTT imminent peril group call and an indication that this is an MCPTT imminent peril group call;
 - b) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - c) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable";

- 5) shall check if a Resource-Priority header field is included in the incoming SIP re-INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 6) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 7) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 8) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 9) if the SIP re-INVITE request was received within an on-demand session, shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
- 10) if the SIP re-INVITE request was received within a pre-established session, shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session;

NOTE: The SIP re-INVITE request can be received within an on-demand session or a pre-established session. If the SIP re-INVITE request is received within a pre-established session, the media-level section for the MCPTT speech media stream and the media-level section of the media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 11) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4]; and
- 12) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to release; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 10.1.1.2.3.1]

When an MCPTT client wants to leave the MCPTT session that has been established using on-demand session, the MCPTT client shall follow the procedures as specified in subclause 6.2.4.1.

[TS 24.379, clause 10.1.1.2.3.3]

Upon receiving a SIP BYE request for releasing the prearranged MCPTT group call, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

[TS 24.380, clause 6.2.4.5.3]

Upon receiving an indication from the user to release the permission to send RTP media, the floor participant:

1. shall send a Floor Release message towards the floor control server The Floor Release message:
 - a. may include the first bit in the subtype of the Floor Release message set to '1' (acknowledgement is required) as specified in subclause 8.2.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

- b. if the session is a broadcast call and if the session was established as a normal call, shall include the Floor Indicator with the A-bit set to '1' (Normal call); and
 - c. if the Floor Granted message included the G-bit set to '1' (Dual floor), shall include the Floor Indicator with the G-bit set to '1' (Dual floor);
2. shall remove the indication that the participant is overriding without revoke if this indication is stored;
 3. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
 4. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.3.5]

Upon receiving an indication from the user to request permission to send media, the floor participant:

1. shall send the Floor Request message toward the floor control server; The Floor Request message:
 - a. if a different priority than the normal priority is required, shall include the Floor Priority field with the priority not higher than negotiated with the floor control server as specified in subclause 14.3.3; and
 - b. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1; and
3. shall enter the 'U: pending Request' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in an SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.4]

Upon receiving a Floor Revoke message, the floor participant:

1. shall inform the user that the permission to send RTP media is being revoked;
2. may give information to the user about the reason for revoking the permission to send media;
3. shall request the media in the MCPTT client discard any remaining buffered RTP media packets and to stop forwarding of encoded voice to the MCPTT server;

- 4 if the G-bit in the Floor Indicator is set to '1' (Dual floor):
 - a. shall send a Floor Release message. In the Floor Release message:
 - i. shall include the Floor Indicator with the G-bit set to '1' (Dual floor); and
 - ii. may set the first bit in the subtype to '1' (Acknowledgment is required) as described in subclause 8.3.2;
- 5 if the G-bit in the Floor Indicator is set to '0' (not Dual floor):
 - a. shall send a Floor Release message. In the Floor Release message:
 - i. shall include the Floor Indicator with the G-bit set to '0' (not Dual floor); and
 - ii. may set the first bit in the subtype to '1' (Acknowledgment is required) as described in subclause 8.3.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

6. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
7. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.4.4]

Upon receiving a Floor Deny message, the floor participant:

1. if the first bit in the subtype of the Floor Deny message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '3' (Floor Deny); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor deny notification to the user;
3. may display the floor deny reason to the user using information in the Reject Cause field;
4. shall stop timer T101 (Floor Request); and
5. shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.9]

Upon receiving a Floor Queue Position Info message, the floor participant:

1. if the first bit in the subtype of the Floor Queue Position Info message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '9' (Floor Queue Position Info); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor request queued response notification to the MCPTT user;
3. may provide the queue position and priority to the MCPTT user; and
4. shall enter the 'U: queued' state.

[TS 24.380, clause 6.2.4.9.9]

Upon receipt of an indication from the MCPTT client to request the queue position, the floor participant:

1. shall send the Floor Queue Position Request message;
2. shall start timer T104 (Floor Queue Position Request) and initialize counter C104 (Floor Queue Position Request) to 1; and
3. remain in the 'U: queued' state.

[TS 24.380, clause 6.2.4.9.6]

Upon receiving an indication from the MCPTT user to release the queued floor request, the floor participant:

1. shall send a Floor Release message: The Floor Release message:
 - a. may include the Floor Indicator field changing a broadcast group call to a normal call;
2. may set the first bit in the subtype of the Floor Release message to '1' (Acknowledgment is required) as described in subclause 8.3.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

3. shall start timer T100 (Floor Release) and initialise counter C10 (Floor Release) to 1;
4. shall stop timer T104 (Floor Queue Position Request), if running; and
5. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.9.4]

Upon receiving a Floor Granted message, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide a floor granted notification to the MCPTT user;
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. shall stop timer T104 (Floor Queue Position Request), if running;
5. shall start timer T132 (Queued granted user action);
6. shall indicate the user that the floor is granted; and
7. shall remain in the 'U: queued' state.

6.1.1.2.3 Test description

6.1.1.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.2.3.2 Test procedure sequence

Table 6.1.1.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|--------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a group call with automatic commencement mode? | - | - | 1 | P |
| 2a1-9 | Void | - | - | - | - |
| 10 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 11 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 12-14 | Void | -- | - | - | - |
| 15 | The SS overrides the UE (MCPTT client) and grants the floor to a higher priority client. | - | - | - | - |
| 16 | The SS sends a Floor Revoke message with Reject Cause #4 - Media Burst pre-empted. | <-- | Floor Revoke | - | - |
| - | EXCEPTION: In parallel to the events described in step 17 the step specified in Table 6.1.1.2.3.2-2 takes place. | - | - | - | - |
| 17 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1? | - | - | 2 | P |
| 18 | Void | -- | - | - | - |
| 19 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 20 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Deny' as described in TS 36.579-1 [2] Table 5.3A.14.3-1? | - | - | 2 | P |
| 21-22 | Void | - | - | - | - |
| - | EXCEPTION: Steps 23a1 - 23b2 describe behaviour that depends on pc_MCPTT_FloorRequestQueueing. The "lower case letter" identifies a step sequence that takes place when one or the other is the case. | - | - | - | - |
| 23a1 | IF pc_MCPTT_FloorRequestQueueing THEN: Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 23a2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Queue Position Info' as described in TS 36.579-1 [2] Table 5.3A.12.3-1? | - | - | 11 | P |
| 23a3 | Check: Does the UE (MCPTT client) provide floor request queued response notification to the user? (NOTE 1)? | - | - | 11 | P |
| 23a4 | Make the UE (MCPTT client) request the floor queue position. (NOTE 1). | - | - | - | - |
| 23a5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Queuing Position Request' as described in TS 36.579-1 [2] Table 5.3A.13.3-1? | - | - | 11 | P |

| | | | | | |
|---------|---|-----|---------------|----|---|
| 23a6 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 11 | P |
| 23a7 | Make the UE (MCPTT client) cancel the floor request. (NOTE 1). | - | - | - | - |
| 23a8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1 to cancel the queue position? | - | - | 11 | P |
| 23a9 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 23a10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Queue Position Info' as described in TS 36.579-1 [2] Table 5.3A.12.3-1? | - | - | 11 | P |
| 23a11 | Check: Does the UE (MCPTT client) provide floor request queued response notification to the user? (NOTE 1)? | - | - | 11 | P |
| 23a12 | The SS sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 23a13 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1)? | - | - | 11 | P |
| 23b1 | ELSE IF NOT pc_MCPTT_FloorRequestQueueing THEN: Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 23b2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request - Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 24-38 | Void | - | - | - | - |
| 39 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 40 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release - Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 41a1-42 | Void | - | - | - | - |
| 43 | Make the UE (MCPTT client) release the call. (NOTE 1). | - | - | - | - |
| 44 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 3 | P |
| 45 | Void | - | - | - | - |
| 46 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a group call with automatic commencement mode? | - | - | 1 | P |
| 47a1-51 | Void | - | - | - | - |
| 52 | The SS sends a Floor Taken message. | <-- | Floor Taken | - | - |

| | | | | | |
|-----------|--|-----|-------------|---|---|
| 53 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to upgrade the call to an emergency group call? | - | - | 4 | P |
| 54A | Void | - | - | - | - |
| 54B | The SS sends a Floor Taken message. | <-- | Floor Taken | - | - |
| 55 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 56 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 57 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 5 | P |
| 58-60 | Void | - | - | - | - |
| 61 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 62 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 5 | P |
| 63a1-64 | Void | - | - | - | - |
| 65 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to cancel the emergency state? | - | - | 6 | P |
| 65Aa1-66A | Void | - | - | - | - |
| 67 | The SS sends a Floor Taken message. | <-- | Floor Taken | - | - |
| 68 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 69 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 70 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 71-73 | Void | - | - | - | - |
| 74 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 75 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 76a1-77 | Void | - | - | - | - |
| 78 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to upgrade the call to an imminent peril group call? | - | - | 7 | P |
| 78Aa1-79A | Void | - | - | - | - |
| 80 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 81 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |

| | | | | | |
|--|---|-----|-------------|----|---|
| 82 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 8 | P |
| 83-85 | Void | - | - | - | - |
| 86 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 87 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 8 | P |
| 88a1-89 | Void | - | - | - | - |
| 90 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to cancel the imminent peril state? | - | - | 9 | P |
| 90Aa1-91A | Void | - | - | - | - |
| 92 | The SS sends a Floor Taken message. | <-- | Floor Taken | - | - |
| 93 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 94 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 95 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 9 | P |
| 96-98 | Void | - | - | - | - |
| 99 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 100 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 9 | P |
| 101a1-102 | Void | - | - | - | - |
| 103 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 10 | P |
| 104 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

Table 6.1.1.2.3.2-2: Parallel Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) notify the user that the permission to send RTP media is being revoked? (NOTE 1 in Table 6.1.1.2.3.2-1) | - | - | 2 | P |

6.1.1.2.3.3 Specific message contents

Table 6.1.1.2.3.3-1: SIP INVITE from the SS (steps 1, 46, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |

| | | | | |
|---------------------|--|--------------------|--|--|
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.2.3.3-1B | | | |

Table 6.1.1.2.3.3-1A: SDP in SIP INVITE (Table 6.1.1.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER

Table 6.1.1.2.3.3-1B: MCPTT-Info in SIP INVITE (Table 6.1.1.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL

Table 6.1.1.2.3.3-2: Void**Table 6.1.1.2.3.3-2A: SIP 200 (OK) from the UE (steps 1, 46, 53, 65, 78, 90, Table 6.1.1.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-2B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.2.3.3-2C | | | |

Table 6.1.1.2.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.1.2.3.3-2A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER

Table 6.1.1.2.3.3-2C: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.2.3.3-2A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP

Table 6.1.1.2.3.3-2D: SIP BYE from the UE (step 44, Table 6.1.1.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.10.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MT_CALL

Table 6.1.1.2.3.3-3: SIP INVITE from the SS (step 53, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.2.3.3-4 | | | |

Table 6.1.1.2.3.3-3A: SDP in SIP INVITE (Table 6.1.1.2.3.3-3, 6.1.1.2.3.3-5, 6.1.1.2.3.3-7, 6.1.1.2.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER |
|--|
|--|

Table 6.1.1.2.3.3-4: MCPTT-Info in SIP INVITE (Table 6.1.1.2.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL, EMERGENCY-CALL |
|---|
|---|

Table 6.1.1.2.3.3-5: SIP INVITE from the SS (step 65, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.2.3.3-6 | | | |

Table 6.1.1.2.3.3-6: MCPTT-Info in SIP INVITE (Table 6.1.1.2.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.1.1.2.3.3-7: SIP INVITE from the SS (step 78, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.2.3.3-7A | | | |

Table 6.1.1.2.3.3-7A: MCPTT-Info in SIP INVITE (Table 6.1.1.2.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL, IMPERIL-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.2.3.3-8: SIP INVITE from the SS (step 90, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.2.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.2.3.3-9 | | | |

Table 6.1.1.2.3.3-9: MCPTT-Info in SIP INVITE (Table 6.1.1.2.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| imminentperil-ind | Encrypted <imminentperil-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.1.1.2.3.3-10..11: Void

Table 6.1.1.2.3.3-11A: Floor Taken (step 54B, Table 6.1.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition EMERGENCY-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.2.3.3-12: Void

Table 6.1.1.2.3.3-13: Floor Idle (steps 55, 62, Table 6.1.1.2.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.2.3.3-14: Floor Idle (steps 80, 87, Table 6.1.1.2.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition IMPERIL-CALL

Table 6.1.1.2.3.3-15: Void

Table 6.1.1.2.3.3-16: Floor Request (step 57, Table 6.1.1.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition EMERGENCY-CALL

Table 6.1.1.2.3.3-17: Floor Request (step 82, Table 6.1.1.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition IMPERIL-CALL

Table 6.1.1.2.3.3-18..19: Void

Table 6.1.1.2.3.3-20: Floor Granted (step 57, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY-CALL, ACK

Table 6.1.1.2.3.3-21: Floor Granted (step 82, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition IMPERIL-CALL, ACK

Table 6.1.1.2.3.3-22..24: Void

Table 6.1.1.2.3.3-25: Floor Release (step 62, Table 6.1.1.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition EMERGENCY-CALL

Table 6.1.1.2.3.3-26: Floor Release (step 87, Table 6.1.1.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition IMPERIL-CALL

Table 6.1.1.2.3.3-27: Floor Deny (step 21, Table 6.1.1.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.14.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1

| Information Element | Value/remark | Comment | Condition |
|---------------------|----------------|---------------------------|-----------|
| Reject Cause | | | |
| Reject Cause | "255" | Cause #255 - Other reason | |
| Reject Phrase | "Other reason" | | |

Table 6.1.1.2.3.3-28..29: Void

6.1.1.3 On-network / On-demand Pre-arranged Group Call / Manual Commencement Mode / Client Originated (CO)

6.1.1.3.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
  requesting Manual Commencement Mode at the invited MCPTT client(s) and implicit floor control }
  then { UE (MCPTT Client) requests On-demand Manual Commencement Mode Pre-arranged Group Call
  establishment with implicit floor control by sending a SIP INVITE message and, after indication from
  the MCPTT Server that the call was established and receiving a Floor Granted message, notifies the
  user and respects the floor control imposed by the MCPTT Server }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Manual
Commencement Mode }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}
```

6.1.1.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.1, 6.2.1, 10.1.1.2.3.1, 6.2.4.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 3: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.381 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

- 15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;
- 16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and

- b) the codec(s) and media parameters and attributes with the following clarification:

- i) if the MCPTT client is initiating a call to a group identity;

- ii) if the <preferred-voice-encodings> element is present in the group document retrieved by the group management client as specified in 3GPP TS 24.381 [31] containing an <encoding> element with a "name" attribute; and

- iii) if the MCPTT client supports the encoding name indicated in the value of the "name" attribute;

then the MCPTT client:

- i) shall insert the value of the "name" attribute in the <encoding name> field of the "a=rtpmap" attribute as defined in IETF RFC 4566 [12]; and

- c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];

- 3) if floor control shall be used during the session, shall include an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12 for a media-floor control entity, consisting of:

- a) the port number for the media-floor control entity selected as specified in 3GPP TS 24.380 [5]; and

- b) the 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14; and

- 4) if end-to-end security is required for a private call and the SDP offer is not for establishing a pre-established session, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 10.1.1.2.3.1]

When an MCPTT client wants to leave the MCPTT session that has been established using on-demand session, the MCPTT client shall follow the procedures as specified in subclause 6.2.4.1.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

6.1.1.3.3 Test description

6.1.1.3.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.3.3.2 Test procedure sequence

Table 6.1.1.3.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with manual commencement mode and implicit floor request. (NOTE 1) | - | - | -- | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO group call establishment, manual commencement' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with manual commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-6 | Void | - | - | - | - |
| 6A | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 6B | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 6C | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 1 | P |
| 7 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| 9 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.3.3.3 Specific message contents

Table 6.1.1.3.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.3.3.2-1); step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition MANUAL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.3.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.3.3.3-1B | | | |

Table 6.1.1.3.3.3-1A: SDP in SIP INVITE (Table 6.1.1.3.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.3.3.3-1B: MCPTT-Info in SIP INVITE (Table 6.1.1.3.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFER |
|---|

Table 6.1.1.3.3.3-2: Void

Table 6.1.1.3.3.3-2A: SIP 200 (OK) from the SS (step 2, Table 6.1.1.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.3.3.3-2B | | | |

Table 6.1.1.3.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.1.3.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.1.3.3.3-3: Void

6.1.1.4 On-network / On-demand Pre-arranged Group Call / Manual Commencement Mode / Client Terminated (CT)

6.1.1.4.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT }
ensure that {
  when { the SS (MCPTT Server) initiates an On-demand Pre-arranged group call with Manual
Commencement Mode }
  then { UE (MCPTT Client) responds by sending a SIP 200 (OK) message and notifies the user that
the call was established and respects the floor control imposed by the MCPTT Server }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Manual
Commencement Mode }
ensure that {
  when { the SS (MCPTT Server) ends the ongoing MCPTT Group Call by sending a SIP BYE message}
  then { the UE (MCPTT Client) responds with a SIP 200 (OK)}
}
```

(3)

```
with { UE (MCPTT Client) registered and authorised for MCPTT }
ensure that {
  when { the SS (MCPTT Server) initiates an On-demand Pre-arranged group call with Manual
Commencement Mode and the MCPTT User (MCPTT Client) chooses to reject the call }
  then { UE (MCPTT Client) responds by sending a SIP 480 (Temporarily unavailable) message to the
SS in order to reject the call }
}
```

6.1.1.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.2, 6.2.2, 6.2.3.2.2, 6.5, 10.1.1.2.3.3, 6.2.6. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.2]

In the procedures in this subclause:

- 1) emergency indication in an incoming SIP INVITE request refers to the <emergency-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

- 2) imminent peril indication in an incoming SIP INVITE request refers to the <imminentperil-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body.

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

- 1) may reject the SIP INVITE request if either of the following conditions are met:
 - a) MCPTT client does not have enough resources to handle the call; or
 - b) any other reason outside the scope of the present document;and skip the rest of the steps;
 - 2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in subclause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;
- NOTE: If the SIP INVITE request contains an emergency indication or imminent peril indication, the MCPTT client can by means beyond the scope of the present document choose to accept the request.
- 3) shall check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
 - 4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and
 - iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
 - b) shall set the MCPTT emergency group state to "MEG 2: in-progress";
 - c) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - d) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable"; otherwise
 - 5) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and
 - b) shall set the MCPTT imminent peril group state to "MIG 3: in-progress";
 - 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
 - 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.2 if one of the following conditions are met:

- a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;
- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
- a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
- 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and
- 4) if included in the SDP offer, shall include the media-level section of the offered media-floor control entity consisting of:
 - a) an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12; and
 - b) 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14.

[TS 24.379, clause 6.2.3.2.2]

When performing the manual commencement mode procedures:

- 1) the terminating MCPTT client may automatically generate a SIP 183 (Session Progress) in accordance with 3GPP TS 24.229 [4], prior to the MCPTT user's acknowledgement; and
- 2) if the MCPTT user declines the MCPTT session invitation the MCPTT client shall send a SIP 480 (Temporarily Unavailable) response towards the MCPTT server with the warning text set to: "110 user declined the call invitation" in a Warning header field as specified in subclause 4.4, and not continue with the rest of the steps in this subclause.

When generating a SIP 183 (Session Progress) response, the MCPTT client:

- 1) shall include the following in the Contact header field:

- a) the g.3gpp.mcptt media feature tag; and
 - b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt"; and
- 2) may include a P-Answer-State header field with the value "Unconfirmed" as specified in IETF RFC 4964 [34];

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in subclause 6.2.3.1.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.5]

The MCPTT client and the MCPTT server shall support several MIME bodies in SIP request and SIP responses.

When the MCPTT client or the MCPTT server sends a SIP message and the SIP message contains more than one MIME body, the MCPTT client or the MCPTT server:

- 1) shall, as specified in IETF RFC 2046 [21], include one Content-Type header field with the value set to multipart/mixed and with a boundary delimiter parameter set to any chosen value;
- 2) for each MIME body:
 - a) shall insert the boundary delimiter;
 - b) shall insert the Content-Type header field with the MIME type of the MIME body; and
 - c) shall insert the content of the MIME body;
- 3) shall insert a final boundary delimiter; and
- 4) if an SDP offer or an SDP answer is one of the MIME bodies, shall insert the application/sdp MIME body as the first MIME body.

NOTE: The reason for inserting the application/sdp MIME body as the first body is that if a functional entity in the underlying SIP core does not understand multiple MIME bodies, the functional entity will ignore all MIME bodies with the exception of the first MIME body. The order of multiple MCPTT application MIME bodies in a SIP message is irrelevant.

When the MCPTT client or the MCPTT server sends a SIP message and the SIP message contains only one MIME body, the MCPTT client or the MCPTT server:

- 1) shall include a Content-Type header field set to the MIME type of the MIME body; and
- 2) shall insert the content of the MIME body.

[TS 24.379, clause 10.1.1.2.3.3]

Upon receiving a SIP BYE request for releasing the prearranged MCPTT group call, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

6.1.1.4.3 Test description

6.1.1.4.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.4.3.2 Test procedure sequence

Table 6.1.1.4.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---------|---|------------------|-----------------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.5.3-1? | - | - | 1 | P |
| 2-7 | Void | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2], Table 5.3.12.3-1? | - | - | 2 | P |
| 9-10 | Void | - | - | - | - |
| 11-15c1 | Steps 1a1 – 5c1 of procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2], Table 5.3.5.3-1 are performed. | - | - | - | - |
| 14 | Make the UE (MCPTT client) decline the call. (NOTE 1) | - | - | - | - |
| 15 | Check: Does the UE (MCPTT client) answer the call with a SIP 480 (Temporarily unavailable)? | --> | SIP 480 (Temporarily unavailable) | 3 | P |
| 16 | SS responds to the SIP 480 (Temporarily unavailable) with a SIP ACK | <-- | SIP ACK | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection. | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.4.3.3 Specific message contents

Table 6.1.1.4.3.3-1..2: Void**Table 6.1.1.4.3.3-3: SIP INVITE from the SS (Steps 1, 5, Table 6.1.1.4.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3.5.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.4.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.4.3.3-3B | | | |

Table 6.1.1.4.3.3-3A: SDP in SIP INVITE (Table 6.1.1.4.3.3-3)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER |
|--|

Table 6.1.1.4.3.3-3B: MCPTT-Info in SIP INVITE (Table 6.1.1.4.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL |
|---|

Table 6.1.1.4.3.3-4: SIP 200 (OK) from the UE (Step 1, Table 6.1.1.4.3.2-1; Step 7, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.1.4.3.3-5 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.4.3.3-6 | | | |

Table 6.1.1.4.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.4.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.1.1.4.3.3-6: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.4.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

Table 6.1.1.4.3.3-7: SIP ACK from the SS (Step 16, Table 6.1.1.4.3.2-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.1.2-1, condition NON-2XX |
|--|

6.1.1.5 On-network / Pre-arranged Group Call using pre-established session / Client originated Pre-established Session Release with associated MCPTT session / Client Originated (CO)

6.1.1.5.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service and having a pre-established session with the MCPTT Server }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call using a pre-established session requesting Automatic Commencement Mode at the invited MCPTT client(s) and implicit floor control }
  then { UE (MCPTT Client) requests On-demand Pre-arranged Group Call using a pre-established session establishment by sending a SIP REFER message and responds to the SS with correct MCPC messages }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call using a pre-established session }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Group Call but keep the pre-established session }
  then { UE (MCPTT Client) sends a SIP REFER request and leaves the MCPTT session }
}
```

6.1.1.5.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.2.1, 10.1.1.2.3.2, 6.2.4.2, TS 24.380, clauses 9.2.2.2.2, 9.2.2.3.2, 9.2.2.4.6. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT group session using an MCPTT group identity identifying a prearranged MCPTT group within the pre-established session, the MCPTT client shall generate a SIP REFER request as specified in IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], and in accordance with the UE procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client shall follow the procedures specified in subclause 10.1.2.2.1 with the clarification in step 3) of subclause 10.1.2.2.1 that:

- 1) the <entry> element in the application/resource-lists MIME body shall contain a "uri" attribute set to the prearranged MCPTT group identity;
- 2) the <session-type> element of the application/vnd.3gpp.mcptt-info MIME body in the hname "body" URI header field shall be set to a value of "prearranged"; and
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2.

[TS 24.379, clause 10.1.1.2.3.2]

When an MCPTT client wants to leave the MCPTT session within a pre-established session, the MCPTT client shall follow the procedures as specified in subclause 6.2.4.2.

[TS 24.379, clause 6.2.4.2]

Upon receiving a request from an MCPTT user to leave an MCPTT session within a pre-established session, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to leave;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP REFER request, the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 9.2.2.2.2]

When a pre-established session is created between the MCPTT client and the participating MCPTT function, as specified in 3GPP TS 24.379 [2], the MCPTT client:

1. shall initialize any needed user plane resources for the pre-established session as specified in 3GPP TS 24.379 [2]; and
2. shall enter the 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or
2. Otherwise the MCPTT client:
 - a. shall send the Acknowledgement message with the Reason Code field set to 'Busy' or 'Not Accepted'; and
 - b. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.4.6]

Upon receiving a 2xx response to the sent SIP REFER request as described in 3GPP TS 24.379 [2] when the call is released, but the Pre-established Session is kept alive the MCPTT client:

1. shall enter the 'U: Pre-established session not in use' state; and
2. shall terminate the instance of 'Floor participant state transition diagram for basic operation' state machine as specified in subclause 6.2.4.

6.1.1.5.3 Test description

6.1.1.5.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.5.3.2 Test procedure sequence

Table 6.1.1.5.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call using the pre-established session with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish a group call with automatic commencement mode? | - | - | 1 | P |
| 2A | The SS (MCPTT server) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 3-6 | Void | - | - | - | - |
| 7 | Make the UE (MCPTT client) leave the session. (NOTE 1) | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.4.3-1 to release the call? | - | - | 2 | P |
| 9 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.5.3.3 Specific message contents

Table 6.1.1.5.3.3-1: SIP REFER from the UE (step 2, Table 6.1.1.5.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition GROUP-CALL | | | | |
|--|--|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource list | | |
| MIME-part-body | Resource-lists as described in Table 6.1.1.5.3.3-3 | | | |

Table 6.1.1.5.3.3-2: Void

Table 6.1.1.5.3.3-3: Resource-lists in SIP REFER (Table 6.1.1.5.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.1.5.3.3-3A |
|---|

Table 6.1.1.5.3.3-3A: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.1.5.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition GROUP-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.5.3.3-3B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.5.3.3-3C | | | |

Table 6.1.1.5.3.3-3B: SDP in SIP header fields (Table 6.1.1.5.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.1.1.5.3.3-3C: MCPTT-Info in SIP header fields (Table 6.1.1.5.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE-REFER |
|---|

Table 6.1.1.5.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.1.5.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.1.1.5.3.3-4A | | | |

Table 6.1.1.5.3.3-4A: SDP in SIP 200 (OK) (Table 6.1.1.5.3.3-4)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.5.3.3-5: Connect (step 2, Table 6.1.1.5.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition GROUP-CALL, ACK |
|---|

6.1.1.6 On-network / Pre-arranged Group Call using pre-established session / Automatic Commencement Mode / Server originated Pre-established Session Release with associated MCPTT session / Client Terminated (CT)

6.1.1.6.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service and having a pre-established session with the MCPTT Server }
ensure that {
  when { the MCPTT Server requests the establishment of an MCPTT On-demand Pre-arranged Group Call using a pre-established session requesting Automatic Commencement Mode to the UE (MCPTT Client) by sending a Connect }
  then { UE (MCPTT Client) accepts the On-demand Pre-arranged Group Call by sending an Acknowledgement }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call using a pre-established session with Automatic Commencement Mode }
ensure that {
  when { the MCPTT Server wants to terminate the ongoing MCPTT Group Call and sends a Disconnect }
  then { UE (MCPTT Client) accepts the ending of the MCPTT Group Call by sending an Acknowledgement }
}
```

6.1.1.6.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.380, clauses 4.1.2.2, 4.1.2.3, 9.2.2.3.2, 9.2.2.3.4. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.380, clause 4.1.2.2]

For a pre-arranged group call if the controlling MCPTT function as triggered by an originating group member initiates a call as specified in 3GPP TS 24.379 [2], the participating MCPTT function which serves the terminating MCPTT client sends a Connect message to all affiliated MCPTT clients of this group. After the reception of the Connect message the terminating MCPTT client sends an Acknowledgment message by indicating that the connection is accepted or by indicating that the connection is not accepted. If the connection is accepted by the terminating MCPTT client, the floor control for this call continues as specified in clause 6.

NOTE: If a terminating client does not have an available pre-established session, the call setup proceeds as in on-demand call setup as specified in 3GPP TS 24.379 [2].

[TS 24.380, clause 4.1.2.3]

When a call is released by the controlling MCPTT function (as specified in 3GPP TS 24.379 [2]), the participating MCPTT function sends a Disconnect message to all MCPTT clients which used a pre-established session for this call. Then the call is released (see also 3GPP TS 24.379 [2]) and the pre-established session can be used for another call. When an MCPTT client leaves a call (as specified in 3GPP TS 24.379 [2]) which was setup over a pre-established session without releasing the pre-established session, this pre-established session can be used for another call.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;

- c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or
2. Otherwise the MCPTT client:
 - a. shall send the Acknowledgement message with the Reason Code field set to 'Busy' or 'Not Accepted'; and
 - b. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.4]

Upon reception of a Disconnect message the MCPTT client:

1. if the first bit in the subtype of the Disconnect message is set to '1' (acknowledgement is required), shall send the Acknowledgement message with the Reason Code set to 'Accepted'; and
2. shall remain in 'U: Pre-established session not in use' state.

6.1.1.6.3 Test description

6.1.1.6.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.6.3.2 Test procedure sequence

Table 6.1.1.6.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT Call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.8.3-1 to establish a group call with automatic commencement mode? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| 3 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.5.3-1 to release the call? | - | - | 2 | P |
| 4 | Void | - | - | - | - |

6.1.1.6.3.3 Specific message contents

Table 6.1.1.6.3.3-1: Connect (step 1, Table 6.1.1.6.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.8.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition GROUP-CALL, ACK | | | |
|---|--------------|-------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Answer State field | | | |
| Answer State | "0" | unconfirmed | |

6.1.1.7 On-network / Pre-arranged Group Call using pre-established session / Manual Commencement Mode / Client Terminated (CT)

6.1.1.7.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service and having a pre-established
session with the MCPTT Server }
ensure that {
  when { the MCPTT Server requests the establishment of an MCPTT On-demand Pre-arranged Group Call
using a pre-established session requesting Manual Commencement Mode to the UE (MCPTT Client) by
sending a SIP re-INVITE }
    then { UE (MCPTT Client) accepts the On-demand Pre-arranged Group Call by sending an SIP 200
(OK) and responds to MCPC messages with an Acknowledgement }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call using a pre-established
session with Automatic Commencement Mode }
ensure that {
  when { the MCPTT Server wants to terminate the ongoing MCPTT Group Call and sends a Disconnect }
    then { UE (MCPTT Client) accepts the ending of the MCPTT Group Call by sending an
Acknowledgement }
}

```

6.1.1.7.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.380, clauses 4.1.2.2, 4.1.2.3, 9.2.2.3.2, 9.2.2.3.4, 9.2.2.3.3 and TS 24.379, clause 10.1.1.2.2.2, 10.1.1.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should

be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.380, clause 4.1.2.2]

For a pre-arranged group call if the controlling MCPTT function as triggered by an originating group member initiates a call as specified in 3GPP TS 24.379 [2], the participating MCPTT function which serves the terminating MCPTT client sends a Connect message to all affiliated MCPTT clients of this group. After the reception of the Connect message the terminating MCPTT client sends an Acknowledgment message by indicating that the connection is accepted or by indicating that the connection is not accepted. If the connection is accepted by the terminating MCPTT client, the floor control for this call continues as specified in clause 6.

NOTE: If a terminating client does not have an available pre-established session, the call setup proceeds as in on-demand call setup as specified in 3GPP TS 24.379 [2].

[TS 24.380, clause 4.1.2.3]

When a call is released by the controlling MCPTT function (as specified in 3GPP TS 24.379 [2]), the participating MCPTT function sends a Disconnect message to all MCPTT clients which used a pre-established session for this call. Then the call is released (see also 3GPP TS 24.379 [2]) and the pre-established session can be used for another call. When an MCPTT client leaves a call (as specified in 3GPP TS 24.379 [2]) which was setup over a pre-established session without releasing the pre-established session, this pre-established session can be used for another call.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or
2. Otherwise the MCPTT client:
 - a. shall send the Acknowledgement message with the Reason Code field set to 'Busy' or 'Not Accepted'; and
 - b. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.4]

Upon reception of a Disconnect message the MCPTT client:

1. if the first bit in the subtype of the Disconnect message is set to '1' (acknowledgement is required), shall send the Acknowledgement message with the Reason Code set to 'Accepted'; and
2. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.3]

When the associated pre-established session between the MCPTT client and the MCPTT server is released the MCPTT client:

1. shall release any user plane resources including any running timers associated with the pre-established session; and
2. shall enter the 'Start-stop' state and then the 'Call setup control over pre-established session state machine' is released.

[TS 24.379, clause 10.1.1.2.2.2]

Upon receiving a SIP re-INVITE request within a pre-established Session without an associated MCPTT session or when generating SIP responses to the SIP re-INVITE request, the MCPTT client shall follow the procedures in subclause 10.1.1.2.1.2.

NOTE: In subclause 10.1.1.2.1.2, the reader is assumed to replace occurrences of SIP INVITE request with SIP re-INVITE request.

[TS 24.379, clause 10.1.1.2.2.2]

In the procedures in this subclause:

- 1) emergency indication in an incoming SIP INVITE request refers to the <emergency-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
- 2) imminent peril indication in an incoming SIP INVITE request refers to the <imminentperil-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body.

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

- 1) may reject the SIP INVITE request if either of the following conditions are met:
 - a) MCPTT client does not have enough resources to handle the call; or
 - b) any other reason outside the scope of this specification;
- 2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in subclause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

NOTE: If the SIP INVITE request contains an emergency indication or imminent peril indication, the MCPTT client can by means beyond the scope of this specification choose to accept the request.

- 3) shall check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and
 - iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
 - b) shall set the MCPTT emergency group state to "MEG 2: in-progress";
 - c) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - d) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable"; otherwise
- 5) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:

- i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and
- b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
 - 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.2 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;
 - 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
 - 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

6.1.1.7.3 Test description

6.1.1.7.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state.
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.7.3.2 Test procedure sequence

Table 6.1.1.7.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.5.3-1? | - | - | 1 | P |
| 2-6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT Call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.8.3-1 starting with step 2? | - | - | 1 | P |
| 8 | Void | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.5.3-1? | - | - | 2 | P |
| 10 | Void | - | - | - | - |

6.1.1.7.3.3 Specific message contents

Table 6.1.1.7.3.3-1: SIP re-INVITE from the SS (step 1, Table 6.1.1.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MANUAL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.7.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.7.3.3-3 | | | |

Table 6.1.1.7.3.3-2: Void

Table 6.1.1.7.3.3-2A: SDP in SIP INVITE (Table 6.1.1.7.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION |
|---|

Table 6.1.1.7.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.1.7.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL |
|---|

Table 6.1.1.7.3.3-4: SIP 200 (OK) from the UE (step 1, Table 6.1.1.7.3.2-1; step 7, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.7.3.3-5 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.7.3.3-6 | | | |

Table 6.1.1.7.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.7.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION |
|--|
|--|

Table 6.1.1.7.3.3-6: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.7.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|
|---|

6.1.1.8 On-network / Pre-arranged Broadcast Group Call / Client Originated (CO)

6.1.1.8.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Broadcast
  Group Call }
  then { UE (MCPTT Client) requests On-demand Pre-arranged Broadcast Group Call by sending a SIP
  INVITE message and responds to the SS with correct SIP messages }
}

```

6.1.1.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 4.12, 6.2.8.2 and 10.1.1.2.1.1. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 4.12]

A broadcast group call is a group call where the initiating MCPTT user expects no response from the other MCPTT users, so that when the user's transmission is complete, so is the call. The functionality in the present release of the specification for broadcast group calls is not compliant to the requirements for user-broadcast group and group-broadcast group calls as specified in 3GPP TS 22.179 [2], 3GPP TS 22.280 [76] and 3GPP TS 23.379 [3]. In the present release of the specification, a broadcast group call can be initiated by an MCPTT user on any MCPTT group that the MCPTT user is part of.

NOTE 1: Configuration related to the authorisation to create a user-broadcast group or a group-broadcast exists in the user profile document as specified in 3GPP TS 24.484 [50], but is not used by any procedures in 3GPP TS 24.481 [31] in the current release, as the ability for an authorised user to create user-broadcast groups and group-broadcast groups is not provided in the current release.

NOTE 2: Configuration related to broadcast group hierarchies can be found in the group document as specified in 3GPP TS 24.481 [31] and in the service configuration document as specified in 3GPP TS 24.484 [50]. However, this configuration is not used by any procedures in 3GPP TS 24.380 [5] in the current release.

[TS 24.379, clause 6.2.8.2]

NOTE: This subclause is referenced from other procedures.

When the MCPTT user initiates a broadcast group call, the MCPTT client:

- 1) in the case of the prearranged group call is initiated on-demand, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body the <broadcast-ind> element set to "true" as defined in clause F.1; and
- 2) in the case the prearranged group call is initiated using a pre-established session, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the "body" URI header field in the Refer-To header field the <broadcast-ind> element set to "true" as defined in clause F.1.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;

...

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

6.1.1.8.3 Test description

6.1.1.8.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.8.3.2 Test procedure sequence

Table 6.1.1.8.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a broadcast group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a broadcast group call with implicit floor control according to option b.iii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 6 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 7 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.8.3.3 Specific message contents

Table 6.1.1.8.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.8.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.8.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.8.3.3-2 | | | |

Table 6.1.1.8.3.3-1A: SDP in SIP INVITE (Table 6.1.1.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED

Table 6.1.1.8.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-REFER, GROUP-CALL, BROADCAST-CALL

Table 6.1.1.8.3.3-3: Void

Table 6.1.1.8.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.1.8.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.8.3.3-2B | | | |

Table 6.1.1.8.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.8.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER |
|---|
|---|

Table 6.1.1.8.3.3-6: SIP BYE from the SS (step 6, Table 6.1.1.8.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|
|--|

6.1.1.9 On-network / Pre-arranged Broadcast Group Call / Client Terminated (CT)

6.1.1.9.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT Client receives a SIP INVITE message of an MCPTT On-demand Pre-arranged Broadcast
Group Call }
  then { the MCPTT Client displays an indication for the Pre-arranged MCPTT group call to the user and
responds to the SS with correct SIP messages }
}

```

(2)

```

with { UE (MCPTT Client) having an incoming Pre-arranged MCPTT group call and the Answer-Mode header
in the SIP INVITE message is set to Manual }
ensure that {
  when { the user answers the MCPTT group call }
  then { UE sends a SIP 200 OK as a response to the SIP INVITE message }
}

```

6.1.1.9.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 4.12, and 10.1.1.2.1.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 4.12]

A broadcast group call is a group call where the initiating MCPTT user expects no response from the other MCPTT users, so that when the user's transmission is complete, so is the call. The functionality in the present release of the specification for broadcast group calls is not compliant to the requirements for user-broadcast group and group-broadcast group calls as specified in 3GPP TS 22.179 [2], 3GPP TS 22.280 [76] and 3GPP TS 23.379 [3]. In the present release of the specification, a broadcast group call can be initiated by an MCPTT user on any MCPTT group that the MCPTT user is part of.

NOTE 1: Configuration related to the authorisation to create a user-broadcast group or a group-broadcast exists in the user profile document as specified in 3GPP TS 24.484 [50], but is not used by any procedures in 3GPP TS 24.481 [31] in the current release, as the ability for an authorised user to create user-broadcast groups and group-broadcast groups is not provided in the current release.

NOTE 2: Configuration related to broadcast group hierarchies can be found in the group document as specified in 3GPP TS 24.481 [31] and in the service configuration document as specified in 3GPP TS 24.484 [50]. However, this configuration is not used by any procedures in 3GPP TS 24.380 [5] in the current release.

[TS 24.379, clause 10.1.1.2.1.2]

In the procedures in this subclause:

...

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.2 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;
- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
- 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

6.1.1.9.3 Test description

6.1.1.9.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.9.3.2 Test procedure sequence

Table 6.1.1.9.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|---------|------|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.5.3-1? | - | - | 1, 2 | P |
| 2-7 | Void | - | - | - | - |
| 8 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 9 | Void | - | - | - | - |

6.1.1.9.3.3 Specific message contents

Table 6.1.1.9.3.3-1: SIP INVITE from the SS (step 1, Table 6.1.1.9.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.9.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.9.3.3-2 | | | |

Table 6.1.1.9.3.3-1A: SDP in SIP INVITE (Table 6.1.1.9.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER |
|--|
|--|

Table 6.1.1.9.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.9.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL, BROADCAST-CALL |
|---|
|---|

Table 6.1.1.9.3.3-3: Void**Table 6.1.1.9.3.3-4: SIP 200 (OK) from the UE (Step 1, Table 6.1.1.9.3.2-1; Step 7, TS 36.579-1 [2] Table 5.3.5.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL | | | | |
|--|--------------|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |

| | | | | |
|----------------|--|-------------------|--|--|
| MIME-part-body | SDP as described in Table 6.1.1.9.3.3-5 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.9.3.3-6 | | | |

Table 6.1.1.9.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.9.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.1.1.9.3.3-6: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.9.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

6.1.1.10 On-network / Broadcast Group Call with Temporary Group / Client Originated (CO)

6.1.1.10.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Broadcast
  Group Call with Temporary Group }
  then { UE (MCPTT Client) requests On-demand Pre-arranged Broadcast Group Call by sending a SIP
  INVITE message and respects the floor control imposed by the MCPTT Server }
}

```

6.1.1.10.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 4.12, 6.2.8.2 and 10.1.1.2.1.1, and TS 24.481 clause 6.3.14. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 4.12]

A broadcast group call is a group call where the initiating MCPTT user expects no response from the other MCPTT users, so that when the user's transmission is complete, so is the call. The functionality in the present release of the specification for broadcast group calls is not compliant to the requirements for user-broadcast group and group-broadcast group calls as specified in 3GPP TS 22.179 [2], 3GPP TS 22.280 [76] and 3GPP TS 23.379 [3]. In the present release of the specification, a broadcast group call can be initiated by an MCPTT user on any MCPTT group that the MCPTT user is part of.

NOTE 1: Configuration related to the authorisation to create a user-broadcast group or a group-broadcast exists in the user profile document as specified in 3GPP TS 24.484 [50], but is not used by any procedures in 3GPP TS 24.481 [31] in the current release, as the ability for an authorised user to create user-broadcast groups and group-broadcast groups is not provided in the current release.

NOTE 2: Configuration related to broadcast group hierarchies can be found in the group document as specified in 3GPP TS 24.481 [31] and in the service configuration document as specified in 3GPP TS 24.484 [50]. However, this configuration is not used by any procedures in 3GPP TS 24.380 [5] in the current release.

[TS 24.379, clause 6.2.8.2]

NOTE: This subclause is referenced from other procedures.

When the MCPTT user initiates a broadcast group call, the MCPTT client:

- 1) in the case of the prearranged group call is initiated on-demand, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body the <broadcast-ind> element set to "true" as defined in clause F.1; and

- 2) in the case the prearranged group call is initiated using a pre-established session, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the "body" URI header field in the Refer-To header field the <broadcast-ind> element set to "true" as defined in clause F.1.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "prearranged";
- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;

...

3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

...

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.481, clause 6.3.14]

In order to form a temporary MCS group, a GMC shall send a HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.3. In the HTTP POST request, the GMC:

a) shall set the Request-URI to an XCAP URI:

1) in users tree where the XUI is set to a group creation XUI configuration parameter; and

2) with the document selector identifying the temporary MCS group to be created; and

b) shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup creation specified in subclause 7.3.4.3, with a <group> element containing a group document for an MCS group. In the group document, the GMC shall include the <on-network-temporary> element according to subclause 7.2. In the <on-network-temporary> element, the GMC shall include <constituent-MCPTT-group-IDs> element according to subclause 7.2. In the <constituent-MCPTT-group-IDs> element, the GMC shall include one <constituent-MCPTT-group-ID> element according to subclause 7.2 for each MCS group to be combined.

Upon reception of an HTTP 2xx response to the sent HTTP POST request, the GMC shall consider the temporary MCS group formation as successful.

Upon reception of an HTTP 409 (Conflict) response with at least one <alt-value> element in the <uniqueness-failure> error element, the GMC may repeat procedures of the present subclause and identify the temporary MCS group being formed with an MCS Group ID indicated in an <alt-value> element.

6.1.1.10.3 Test description

6.1.1.10.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- An MCPTT temporary group T has been created by performing procedure 'MCX NW initiated temporary group creation' as specified in TS 36.579-1 [2] clause 5.3.22.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.10.3.2 Test procedure sequence

Table 6.1.1.10.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a broadcast group call for temporary group T with implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a broadcast group call for temporary group T with implicit floor control according to option b.iii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 5A | The SS (MCPTT server) sends a Floor Taken message with request for acknowledgement. | <-- | Floor Taken | - | - |
| 5B | Check: Does the UE (MCPTT client) send a Floor Ack message? | --> | Floor Ack | 1 | P |
| 6 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 7 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.10.3.3 Specific message contents

Table 6.1.1.10.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.10.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.10.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.10.3.3-2 | | | |

Table 6.1.1.10.3.3-1A: SDP in SIP INVITE (Table 6.1.1.10.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.10.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.10.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER, BROADCAST-CALL | | | | |
|---|---------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | px_MCPTT_Group_T_ID | | | |
| associated-group-id | px_MCPTT_Group_A_ID | | | |

Table 6.1.1.10.3.3-3: Void**Table 6.1.1.10.3.3-3A: SIP 200 (OK) from the SS (step 2, Table 6.1.1.10.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.10.3.3-3B | | | |

Table 6.1.1.10.3.3-3B: SDP in SIP 200 (OK) (Table 6.1.1.10.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER |
|---|

Table 6.1.1.10.3.3-4: Floor Taken (step 5A, Table 6.1.1.10.3.2-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition ACK |
|--|

Table 6.1.1.10.3.3-5: Void**Table 6.1.1.10.3.3-6: SIP BYE from the SS (step 6, Table 6.1.1.10.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|

6.1.1.11 On-network / Pre-arranged Emergency Group Call / Client Originated (CO)

6.1.1.11.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Emergency
Group Call }
  then { UE (MCPTT Client) requests On-demand Pre-arranged Emergency Group Call by sending a SIP
INVITE message and responds to the SS with correct SIP messages }
}
```

6.1.1.11.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 6.2.8.1.1 and 10.1.1.2.1.1. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 6.2.8.1.1]

When the MCPTT emergency state is set and the MCPTT user is authorised to initiate an MCPTT emergency group call on the targeted MCPTT group as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:

- 1) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the SIP INVITE request or SIP REFER request, an <emergency-ind> element set to "true";
- 2) if the MCPTT emergency group call state is set to "MEGC 1: emergency-gc-capable", shall set the MCPTT emergency group call state to "MEGC 2: emergency-call-requested";
- 3) if the MCPTT user has also requested an MCPTT emergency alert to be sent and this is an authorised request for MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6, and the MCPTT emergency alert state is set to "MEA 1: no-alert", shall:
 - a) set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "true" and set the MCPTT emergency alert state to "MEA 2: emergency-alert-confirm-pending"; and
 - b) include in the SIP INVITE request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 4) if the MCPTT user has not requested an MCPTT emergency alert to be sent and the MCPTT emergency alert state is set to "MEA 1: no-alert", shall set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "false"; and
- 5) if the MCPTT client emergency group state of the group is set to a value other than "MEG 2: in-progress" set the MCPTT client emergency group state of the MCPTT group to "MEG 4: confirm-pending".

NOTE 1: This is the case of an MCPTT user already being in the MCPTT emergency state it initiated previously while originating an MCPTT emergency group call or MCPTT emergency alert. All group calls the MCPTT user originates while in MCPTT emergency state will be MCPTT emergency group calls.

When the MCPTT emergency state is clear and the MCPTT emergency group call state is set to "MEGC 1: emergency-gc-capable" and the the MCPTT user is authorised to initiate an MCPTT emergency group call on the targeted MCPTT group as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:

- 1) shall set the MCPTT emergency state;
- 2) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the SIP INVITE request or SIP REFER request an <emergency-ind> element set to "true" and set the MCPTT emergency group call state to "MEGC 2: emergency-call-requested" state;
- 3) if the MCPTT user has also requested an MCPTT emergency alert to be sent and this is an authorised request for MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6, shall:

- a) include in the application/vnd.3gpp.mcptt-info+xml MIME body the <alert-ind> element set to "true" and set the MCPTT emergency alert state to "MEA 2: emergency-alert-confirm-pending"; and
- b) include in the SIP INVITE request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 4) if the MCPTT user has not requested an MCPTT emergency alert to be sent, shall set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "false"; and
- 5) if the MCPTT client emergency group state of the group is set to a value other than "MEG 2: in-progress" shall set the MCPTT client emergency group state of the MCPTT group to "MEG 4: confirm-pending".

NOTE 2: This is the case of an initial MCPTT emergency group call and optionally an MCPTT emergency alert being sent. As the MCPTT emergency state is not sent, there is no MCPTT emergency alert outstanding.

NOTE 3: An MCPTT group call originated by an affiliated member of an MCPTT group which is in an in-progress emergency state (as tracked on the MCPTT client by the MCPTT client emergency group state) but is not in an MCPTT emergency state of their own will also be an MCPTT emergency group call. The <emergency-ind> and <alert-ind> elements of the application/vnd.3gpp.mcptt-info+xml MIME body do not need to be included in this case and hence no action needs to be taken in this subclause.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
- ...
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;

...

14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "prearranged";
- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or

...

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

6.1.1.11.3 Test description

6.1.1.11.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.11.3.2 Test procedure sequence

Table 6.1.1.11.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a emergency group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish an emergency group call according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 5A | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| 6 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 7 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.11.3.3 Specific message contents

Table 6.1.1.11.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.11.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition EMERGENCY-CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.11.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.11.3.3-2 | | | |

Table 6.1.1.11.3.3-1A: SDP in SIP INVITE (Table 6.1.1.10.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|
|--|

Table 6.1.1.11.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.11.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER, EMERGENCY-CALL |
|---|
|---|

Table 6.1.1.11.3.3-2A: SIP 200 (OK) from the SS (step 2, Table 6.1.1.11.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.11.3.3-2B | | | |

Table 6.1.1.11.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.1.11.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_FLOOR_GRANTED, IMPLICIT_GRANT_REQUESTED |
|---|
|---|

Table 6.1.1.11.3.3-3: Void**Table 6.1.1.11.3.3-4: SIP BYE from the SS (step 6, Table 6.1.1.11.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|
|--|

6.1.1.12 On-network / Pre-arranged Emergency Group Call / Client Terminated (CT)

6.1.1.12.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT Client receives a SIP INVITE message with a emergency indication of an MCPTT On-
demand Pre-arranged emergency Group Call }
  then { the MCPTT Client displays an indication for the Pre-arranged MCPTT emergency group call to
the user and responds to the SS with correct SIP messages }
}

```

(2)

```

with { UE (MCPTT Client) having an incoming Pre-arranged MCPTT emergency group call and the Answer-
Mode header in the SIP INVITE message is set to Manual }
ensure that {
  when { the user answers the MCPTT emergency group call }
  then { UE sends a SIP 200 OK as a response to the SIP INVITE message }
}

```

6.1.1.12.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 4.12, 6.2.8.2 and 10.1.1.2.1.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 4.12]

A broadcast group call is a group call where the initiating MCPTT user expects no response from the other MCPTT users, so that when the user's transmission is complete, so is the call. The functionality in the present release of the specification for broadcast group calls is not compliant to the requirements for user-broadcast group and group-broadcast group calls as specified in 3GPP TS 22.179 [2], 3GPP TS 22.280 [76] and 3GPP TS 23.379 [3]. In the present release of the specification, a broadcast group call can be initiated by an MCPTT user on any MCPTT group that the MCPTT user is part of.

NOTE 1: Configuration related to the authorisation to create a user-broadcast group or a group-broadcast exists in the user profile document as specified in 3GPP TS 24.484 [50], but is not used by any procedures in 3GPP TS 24.481 [31] in the current release, as the ability for an authorised user to create user-broadcast groups and group-broadcast groups is not provided in the current release.

NOTE 2: Configuration related to broadcast group hierarchies can be found in the group document as specified in 3GPP TS 24.481 [31] and in the service configuration document as specified in 3GPP TS 24.484 [50]. However, this configuration is not used by any procedures in 3GPP TS 24.380 [5] in the current release.

[TS 24.379, clause 6.2.8.2]

NOTE: This subclause is referenced from other procedures.

When the MCPTT user initiates a broadcast group call, the MCPTT client:

- 1) in the case of the prearranged group call is initiated on-demand, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body the <broadcast-ind> element set to "true" as defined in clause F.1; and
- 2) in the case the prearranged group call is initiated using a pre-established session, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the "body" URI header field in the Refer-To header field the <broadcast-ind> element set to "true" as defined in clause F.1.

[TS 24.379, clause 10.1.1.2.1.2]

In the procedures in this subclause:

- 1) emergency indication in an incoming SIP INVITE request refers to the <emergency-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

...

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:

- i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and
 - iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
- b) shall set the MCPTT emergency group state to "MEG 2: in-progress";
- ...
- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- ...
- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
- a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
- 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

6.1.1.12.3 Test description

6.1.1.12.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.12.3.2 Test procedure sequence

Table 6.1.1.12.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|------|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.5.3-1 to establish an emergency group call with manual commencement mode? | - | - | 1, 2 | P |
| 1A-7A | Void | - | - | - | - |
| 7B | Check: Does the UE (MCPTT client) notify the user that the emergency group call has been established? (NOTE 1) | - | - | 2 | P |
| 8 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed to release the call. | - | - | - | - |
| 9 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.12.3.3 Specific message contents

Table 6.1.1.12.3.3-1: SIP INVITE from the SS (step 1, Table 6.1.1.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.12.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.12.3.3-2 | | | |

Table 6.1.1.12.3.3-1A: SDP in SIP INVITE (Table 6.1.1.12.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER |
|--|

Table 6.1.1.12.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.12.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL, EMERGENCY-CALL |
|---|

Table 6.1.1.12.3.3-3: Void

Table 6.1.1.12.3.3-4: SIP 200 (OK) from the UE (step 1, Table 6.1.1.12.3.2-1; step 7, TS 36.579-1 [2] Table 5.3.5.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.12.3.3-5 | | | |
| MIME body part | | MCPTT-Info | | |

| | | | | |
|----------------|---|--|--|--|
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.12.3.3-6 | | | |
|----------------|---|--|--|--|

Table 6.1.1.12.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.12.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.1.1.12.3.3-6: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.12.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

6.1.1.13 On-network / Pre-arranged Imminent Peril Group Call / Client Originated (CO)

6.1.1.13.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Imminent Peril Group Call }
  then { UE (MCPTT Client) sends a SIP INVITE message to setup the Imminent Peril Group Call }
}

```

6.1.1.13.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.1.2.1.1. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;

...

- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;

9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 3: confirming" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;

14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "prearranged";
- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

...

- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

6.1.1.13.3 Test description

6.1.1.13.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.13.3.2 Test procedure sequence

Table 6.1.1.13.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a imminent peril group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish an imminent peril group call with implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 5A | Check: Does the UE (MCPTT client) notify the user that the call has been established and the floor has been granted to the user? (NOTE 1) | - | - | 1 | P |
| 6 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 7 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.13.3.3 Specific message contents

Table 6.1.1.13.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.13.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition IMPERIL-CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.13.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.13.3.3-2 | | | |

Table 6.1.1.13.3.3-1A: SDP in SIP INVITE (Table 6.1.1.13.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED

Table 6.1.1.13.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.13.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition IMPERIL-CALL, INVITE_REFERER, GROUP-CALL

Table 6.1.1.13.3.3-2A: SIP 200 (OK) from the SS (step 2, Table 6.1.1.13.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.10.3.3-2B | | | |

Table 6.1.1.13.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.1.13.3.3-2A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_FLOOR_GRANTED, IMPLICIT_GRANT_REQUESTED

Table 6.1.1.13.3.3-3: Void**Table 6.1.1.13.3.3-4: SIP BYE from the SS (step 6, Table 6.1.1.13.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL

6.1.1.14 On-network / Pre-Arranged Imminent Peril Group Call / Client Terminated (CT)

6.1.1.14.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT Client receives a SIP INVITE message of an MCPTT On-demand Pre-arranged Imminent
  Peril Group Call }
  then { the MCPTT Client displays an indication for the Pre-arranged MCPTT imminent peril group call
  to the user and responds to the SS with correct SIP messages }
}
```

(2)

```
with { UE (MCPTT Client) having an incoming Pre-arranged MCPTT imminent peril group call and the
  Answer-Mode header in the SIP INVITE message is set to Manual }
ensure that {
  when { the user answers the MCPTT imminent peril group call }
  then { UE sends a SIP 200 OK as a response to the SIP INVITE message }
}
```

6.1.1.14.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.1.2.1.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.1.2]

In the procedures in this subclause:

...

- 2) imminent peril indication in an incoming SIP INVITE request refers to the <imminentperil-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body.

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 5) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":

- a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.2 if one of the following conditions are met:
- a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;
- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.2 if one of the following conditions are met:
- a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or
 - b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and
- 9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in subclause 10.1.3.1.

6.1.1.14.3 Test description

6.1.1.14.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state.
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.14.3.2 Test procedure sequence

Table 6.1.1.14.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|------|---|------------------|---------|------|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT group call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.5.3-1 to establish an imminent peril group call with manual commencement mode? | - | - | 1, 2 | P |
| 2-7A | Void | - | - | - | - |
| 7B | Check: Does the UE (MCPTT client) notify the user that the imminent peril group call has been established? (NOTE 1) | - | - | 1 | P |
| 8 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.14.3.3 Specific message contents

Table 6.1.1.14.3.3-1: SIP INVITE from the SS (step 1, Table 6.1.1.14.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.5.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL

| Information Element | Value/remark | Comment | Reference | Condition |
|-----------------------|---|--------------------|-----------|-----------|
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.14.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.1.14.3.3-2 | | | |

Table 6.1.1.14.3.3-1A: SDP in SIP INVITE (Table 6.1.1.14.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER

Table 6.1.1.14.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.1.14.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL, IMPERIL-CALL

Table 6.1.1.14.3.3-3: SIP 200 (OK) from the UE (Step 1, Table 6.1.1.14.3.2-1; Step 7, TS 36.579-1 [2] Table 5.3.5.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, GROUP-CALL

| Information Element | Value/remark | Comment | Reference | Condition |
|---------------------|--|--------------------|-----------|-----------|
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP as described in Table 6.1.1.14.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |

| | | | | |
|----------------|---|--|--|--|
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.14.3.3-5 | | | |
|----------------|---|--|--|--|

Table 6.1.1.14.3.3-4: SDP in SIP 200 (OK) (Table 6.1.1.14.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.1.1.14.3.3-5: MCPTT-Info in SIP 200 (OK) (Table 6.1.1.14.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

6.1.1.15 On-network / Emergency Alert / Cancel Emergency Alert / Client Originated (CO)

6.1.1.15.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate an emergency alert }
ensure that {
  when { the MCPTT User requests to send an emergency alert with the location of emergency }
  then { UE (MCPTT Client) sends a SIP MESSAGE initiating an emergency alert and reporting
location information }
}
```

(2)

```
with { UE (MCPTT Client) in the "MEA3: emergency-alert-initiated" state}
ensure that {
  when { the MCPTT User requests to cancel the emergency alert}
  then { UE (MCPTT Client) sends a SIP MESSAGE requesting the cancelation of the emergency alert}
}
```

6.1.1.15.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 12.1.1.1, 12.1.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.379 clause 6.2.9.1]

This procedure is initiated by the MCPTT client when it is including location report information:

- 1) as part of a SIP request containing an MCPTT emergency alert; or
- 2) as part of a SIP request for a specified location trigger.

The MCPTT client:

- 1) if location information is being included as part of a SIP request for a specified location trigger criteria as configured in a <TriggeringCriteria> element contained in a <Configuration> element contained in an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in Annex F.3 as received in a SIP MESSAGE request by the procedures of subclause 13.3.2:
 - a) shall include in the SIP request the specific location information as specified by the procedures of subclause 13.3.4.2; and
 - b) shall skip the rest of the steps;
- 2) if location information is being included as part of a SIP request containing an MCPTT emergency alert:

- a) shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in Annex F.3 with a <Report> element included in the <location-info> root element;
- b) shall set the <ReportType> element of the <Report> element to a value of "Emergency";
- c) if the MCPTT client has been configured with an <EmergencyLocationInformation> element contained in a <Configuration> element contained in an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in Annex F.3 and received in a SIP MESSAGE request by the procedures of subclause 13.3.2;
 - i) shall populate the <CurrentLocation> element of the <Report> element as indicated by the <EmergencyLocationInformation> element contained in the <Configuration> element contained in an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in Annex F.3 and previously received by the procedures of subclause 13.3.2;
 - ii) shall skip the rest of the steps; and
- d) if the MCPTT client has not been configured with an <EmergencyLocationInformation> element contained in a <Configuration> element contained in an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in Annex F.3 and received in a SIP MESSAGE request by the procedures of subclause 13.3.2;
 - i) shall include in the <CurrentLocation> element of the <Report> element of the application/vnd.3gpp.mcptt-location-info+xml MIME body a <CurrentCoordinate> element populated as specified in Annex F.3.3.

NOTE: According to local policy, additional location information elements specified in Annex F.3.3 can be included in the <CurrentLocation> element in the event that no <EmergencyLocationInformation> element was previously received.

[TS 24.379 clause 12.1.1.1]

Upon receiving a request from the MCPTT user to send an MCPTT emergency alert to the indicated MCPTT group and this is an authorised request for an MCPTT emergency alert as determined by subclause 6.2.8.1.6, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

NOTE 1: this SIP MESSAGE request is assumed to be sent out-of-dialog.

The MCPTT client:

- 1) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 2) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 3) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 4) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <mcptt-request-uri> element set to the group identity;
 - b) the <alert-ind> element set to a value of "true"; and
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;
- 5) shall include in the SIP MESSAGE request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 6) shall set the MCPTT emergency state if not already set;
- 7) shall set the MCPTT emergency alert state to "MEA 2: emergency-alert-confirm-pending";

- 8) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the group identity; and
- 9) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP MESSAGE request, the MCPTT client shall set the MCPTT emergency alert state to "MEA 3: emergency-alert-initiated".

On receiving a SIP 4xx response a SIP 5xx response or a SIP 6xx response to the SIP MESSAGE request, the MCPTT client shall set the MCPTT emergency alert state to "MEA 1: no-alert".

NOTE 2: the MCPTT emergency state is left set in this case as the MCPTT user presumably is in the best position to determine whether or not they are in a life-threatening condition. The assumption is that the MCPTT user can clear the MCPTT emergency state manually if need be.

[TS 24.379 clause 12.1.1.2]

Upon receiving a request from the MCPTT user to send an MCPTT emergency alert cancellation to the indicated MCPTT group and this is an authorised request for an MCPTT emergency alert cancellation as determined by subclause 6.2.8.1.6, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

NOTE 1: This SIP MESSAGE request is assumed to be sent out-of-dialog.

The MCPTT client:

- 1) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 2) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 3) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing the public user identity of the originator as specified in 3GPP TS 24.229 [4];
- 4) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <mcptt-request-uri> element set to the MCPTT group identity;
 - b) the <alert-ind> element set to a value of "false"; and
 - c) if the MCPTT user is cancelling an MCPTT emergency alert originated by another MCPTT user, include the <originated-by> element set to the MCPTT ID of the MCPTT user who originated the MCPTT emergency alert;
- 5) if the MCPTT user has additionally requested the cancellation of the in-progress emergency state of the MCPTT group and this is an authorised request for an in-progress emergency group state cancellation as determined by subclause 6.2.8.1.7, shall include an <emergency-ind> element set to a value of "false" in the <mcpttinfo> element containing the <mcptt-Params> element;
- 6) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the group identity;
- 7) if the generated SIP MESSAGE request does not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body, shall set the MCPTT emergency alert state to "MEA 4: Emergency-alert-cancel-pending"; and
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

On receipt of a SIP MESSAGE request containing an application/vnd.3gpp.mcptt-info+xml MIME body with an <alert-ind-rcvd> element set to true and an <mcptt-client-id> matching the MCPTT client ID included in the sent SIP MESSAGE request:

- 1) if the <alert-ind> element is set to a value of "false" in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request and the sent SIP MESSAGE request did not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body, shall:
 - a) set the MCPTT emergency alert state to "MEA 1: no-alert"; and
 - b) clear the MCPTT emergency state if not already cleared;
- 2) if the <alert-ind> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request is set to a value of "true" and if the MCPTT emergency alert state is set to "MEA 4: Emergency-alert-cancel-pending" and the sent SIP MESSAGE request did not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body, shall set the MCPTT emergency alert state to "MEA 3: emergency-alert-initiated"; and

NOTE 2: It would appear to be an unusual situation for the initiator of an MCPTT emergency alert to not be able to clear their own alert. Nevertheless, an MCPTT user can be configured to be authorised to initiate MCPTT emergency alerts but not have the authority to clear them. Hence, the case is covered here.

- 3) if an <emergency-ind> element is present in the application/vnd.3gpp.mcptt-info+xml MIME body of received SIP MESSAGE request and is set to a value of "false":
 - a) shall set the MCPTT emergency group call state of the group to "MEGC 1: emergency-gc-capable"; and
 - b) shall set the MCPTT emergency group state of the group to "MEG 1: no-emergency".

NOTE 3: The case where an <emergency-ind> element is set to true is possible but not handled specifically above as it results in no state changes.

On receiving a SIP 4xx response, SIP 5xx response or SIP 6xx response to the sent SIP MESSAGE request:

- 1) if the received SIP 4xx response, SIP 5xx response or SIP 6xx response contains an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with the <alert-ind> element set to a value of "true", the sent SIP MESSAGE request did not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body and the MCPTT emergency alert state is set to "MEA 4: Emergency-alert-cancel-pending", shall set the MCPTT emergency alert state to "MEA 3: emergency-alert-initiated"; and

NOTE 4: In this case, an <emergency-ind> element would either not be present or would be set to true. In either case, no change in state would result. Hence, this case is not specified above.

- 2) if the received SIP 4xx response, SIP 5xx response or a SIP 6xx response to the SIP MESSAGE request does not contain an application/vnd.3gpp.mcptt-info+xml MIME body with an <alert-ind> element, the sent SIP MESSAGE request does not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body and the MCPTT emergency alert state is set to "MEA 4: Emergency-alert-cancel-pending", shall set the MCPTT emergency alert state to "MEA 3: emergency-alert-initiated".

6.1.1.15.3 Test description

6.1.1.15.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.15.3.2 Test procedure sequence

Table 6.1.1.15.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) send an emergency alert. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 to request an emergency alert providing location information? | - | - | 1 | P |
| 3 | Void | - | - | - | - |
| 4 | Make the UE (MCPTT client) cancel the emergency alert. (NOTE 1) | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 to cancel the emergency alert? | - | - | 2 | P |
| 6 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.15.3.3 Specific message contents

Table 6.1.1.15.3.3-1: SIP MESSAGE from the UE (step 2, Table 6.1.1.15.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition LOCATION_REPORT | | | | |
|--|---|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.15.3.3-1B | | | |
| MIME body part | | Location-info | | |
| MIME-part-body | Location-info as described in Table 6.1.1.15.3.3-1A | | | |

Table 6.1.1.15.3.3-1A: Location-Info in SIP MESSAGE (Table 6.1.1.15.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| CurrentLocation | | | | |
| CurrentCoordinate | | | | |
| longitude | Encrypted <longitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |
| latitude | Encrypted <latitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |

Table 6.1.1.15.3.3-1B: MCPTT-Info in SIP MESSAGE (Table 6.1.1.15.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to true | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.1.15.3.3-2A: SIP MESSAGE from the SS (step 2, Table 6.1.1.15.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.15.3.3-2B | | | |

Table 6.1.1.15.3.3-2B: MCPTT-Info in SIP MESSAGE (Table 6.1.1.15.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | not present | | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to true | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| mcptt-client-id | Encrypted <mcptt-client-id> with mcpttString set to the client-id as received from the UE | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind-rcvd | true | | | |

Table 6.1.1.15.3.3-3: SIP MESSAGE from the UE (step 5, Table 6.1.1.15.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.15.3.3-3A | | | |

Table 6.1.1.15.3.3-3A: MCPTT-Info in SIP MESSAGE (Table 6.1.1.15.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.1.15.3.3-4: SIP MESSAGE from the SS (step 5, Table 6.1.1.15.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.15.3.3-5 | | | |

Table 6.1.1.15.3.3-5: MCPTT-Info in SIP MESSAGE (Table 6.1.1.15.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | not present | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| mcptt-client-id | Encrypted <mcptt-client-id> with mcpttString set to the client-id as received from the UE | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind-rcvd | true | | | |

6.1.1.16 On-network / Emergency Alert / Client Terminated (CT)**6.1.1.16.1 Test Purpose (TP)**

(1)

with { UE (MCPTT Client) registered and authorized for MCPTT Service}
 ensure that {

```

when { MCPTT Server notifies the UE (MCPTT client) with an emergency alert with the location of
emergency by sending the UE (MCPTT Client) a SIP MESSAGE }
  then {UE (MCPTT client) acknowledges the emergency alert by sending a SIP 200 (OK) response and
notifies the user of the emergency alert }
}

```

(2)

```

with { UE (MCPTT Client) having been previously notified of an emergency alert}
ensure that {
  when { MCPTT Server sends an emergency alert cancellation to the UE (MCPTT client) }
  then {UE (MCPTT client) acknowledges the cancellation of the emergency state by sending a SIP
200 (OK) response and notifies the user of the cancellation }
}

```

6.1.1.16.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clause 12.1.1.3. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.379 clause 12.1.1.3]

Upon receipt of a "SIP MESSAGE request for emergency notification", the MCPTT client:

- 1) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <alert-ind> element set to a value of "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information, including:
 - a) the MCPTT group identity contained in <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body;
 - b) the originator of the MCPTT emergency alert contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - c) the mission critical organization of the MCPTT emergency alert originator contained in the <mc-org> element of the application/vnd.3gpp.mcptt-info+xml MIME body;

NOTE 1: This is the case of the MCPTT client receiving the notification of another MCPTT user's emergency alert.

- 2) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <alert-ind> element set to a value of "false":
 - a) should display to the MCPTT user an indication of the MCPTT emergency alert cancellation and associated information, including:
 - i) the MCPTT group identity contained in the <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) the originator of the MCPTT emergency alert contained in:
 - A) if present, the <originated-by> element of the application/vnd.3gpp.mcptt-info+xml MIME body; or
 - B) the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - b) if the MCPTT ID contained in the <originated-by> element is the MCPTT ID of the receiving MCPTT user, shall set the MCPTT emergency alert state to "MEA 1: no-alert"; and
 - c) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <emergency-ind> element is set to a value of "false":
 - i) shall set the MCPTT emergency group state to "MEG 1: no-emergency"; and
 - ii) shall set the MCPTT emergency group call state to "MEGC 1: emergency-gc-capable";

NOTE 2: This is the case of the MCPTT client receiving the notification of the cancellation by a third party of an MCPTT emergency alert. This can be the MCPTT emergency alert of another MCPTT user or the MCPTT emergency alert of the recipient, as determined by the contents of the <originated-by> element. Optionally, notification of the cancellation of the in-progress emergency state of the MCPTT group can be included.

- 3) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication of the additional emergency MCPTT user participating in the MCPTT emergency group call including the following if not already displayed as part of step 1):
 - i) the MCPTT group identity contained in the <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - b) shall set the MCPTT emergency group state to "MEG 2: in-progress" if not already set to that value;

NOTE 3: This is the case of the MCPTT client receiving notification of an additional MCPTT user in an MCPTT emergency state (i.e., not the MCPTT user that originally triggered the in-progress emergency state of the group) joining the in-progress emergency group call. An emergency alert indication, if included, is handled in step 1).

- 4) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <emergency-ind> element set to a value of "false":
 - a) should display to the MCPTT user an indication of the cancellation of the in-progress emergency state of the MCPTT group call including the following if not already displayed as part of step 2):
 - i) the MCPTT group identity contained in the <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - b) shall set the MCPTT emergency group state to "MEG 1: no-emergency"; and
 - c) shall set the MCPTT emergency group call state to "MEGC 1: emergency-gc-capable";

NOTE 4: This is the case of the MCPTT client receiving the notification of the cancellation of the in-progress emergency state of the MCPTT group. In this case, the receiving MCPTT client is affiliated with the MCPTT group but not participating in the session. An emergency alert cancellation, if included, is handled in step 2).

- 5) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication of the MCPTT user participating in the MCPTT imminent peril group call including the following if not already displayed as part of step 1):
 - i) the MCPTT group identity contained in the <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress" if not already set to that value;

NOTE 5: This is the case of the MCPTT client receiving notification of an additional MCPTT user initiating an imminent peril group call when there is already an in-progress imminent peril state in effect on the group.

- 6) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <imminentperil-ind> element set to a value of "false":
 - a) should display to the MCPTT user an indication of the cancellation of the in-progress imminent peril state of the MCPTT group including the following if not already displayed as part of step 2):

- i) the MCPTT group identity contained in the <mcptt-calling-group-id> element application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
- b) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
- c) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable";

NOTE 6: This is the case of the MCPTT client receiving notification of the cancellation of the in-progress imminent peril state of the group.

- 7) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4]; and
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

6.1.1.16.3 Test description

6.1.1.16.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.16.3.2 Test procedure sequence

Table 6.1.1.16.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 informing about an emergency alert? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| - | EXCEPTION: Step 3a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE displays an indication and associated information incase of an emergency alert. | - | - | - | - |
| 3a1 | IF pc_MCX_DisplayInfoEmergencyAlert THEN Check: Does the UE (MCPTT client) notify the user of the emergency alert? (NOTE 1) | - | - | 1 | P |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 informing about cancellation of the emergency alert? | - | - | 2 | P |
| 5 | Void | - | - | - | - |
| - | EXCEPTION: Step 6a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE displays an indication and associated information incase of an emergency alert cancellation. | - | - | - | - |
| 6a1 | Check: Does the UE (MCPTT client) notify the user of the emergency alert cancellation? (NOTE 1) | - | - | 2 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI

6.1.1.16.3.3 Specific message contents

Table 6.1.1.16.3.3-1: SIP MESSAGE from the SS (Step 1, Table 6.1.1.16.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition LOCATION-INFO | | | | |
|--|---|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.16.3.3-1B | | | |
| MIME body part | | Location-info | | |
| MIME-part-body | Location-info as described in Table 6.1.1.16.3.3-1A | | | |

Table 6.1.1.16.3.3-1A: Location-Info in SIP MESSAGE (Table 6.1.1.16.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.4-1 | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| CurrentLocation | | | | |
| CurrentCoordinate | | | | |
| longitude | px_MCX_CoordinateLongitude_Client_B (NOTE 1) | | | |
| latitude | px_MCX_CoordinateLatitude_Client_B (NOTE 1) | | | |
| NOTE 1: Shall be encrypted as described in TS 36.579-1[2] Table 5.5.3.4.4-1A. | | | | |

Table 6.1.1.16.3.3-1B: MCPTT-Info in SIP MESSAGE (Table 6.1.1.16.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to true | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.1.1.16.3.3-2: Void**Table 6.1.1.16.3.3-3: SIP MESSAGE from the SS (Step 4, Table 6.1.1.16.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3.33.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.16.3.3-3A | | | |

Table 6.1.1.16.3.3-3A: MCPTT-Info in SIP MESSAGE (Table 6.1.1.16.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition GROUP-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

6.1.1.17 On-network / Broadcast Group Call using pre-established session / Client originated Pre-established Session Release with associated MCPTT session / Client Originated (CO)

6.1.1.17.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorised for MCPTT Service and having a pre-established session with the MCPTT Server }
ensure that {

```

when { the MCPTT User requests the establishment of an MCPTT Broadcast Group Call using a pre-
established session requesting implicit floor control }
then { UE (MCPTT Client) requests Broadcast Group Call using a pre-established session
establishment by sending a SIP REFER message and responds to the SS with correct MCPC messages }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing Broadcast Group Call using a pre-established session }
ensure that {
when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Broadcast Group Call but
keep the pre-established session }
then { UE (MCPTT Client) sends a SIP REFER request and leaves the MCPTT session }
}

```

6.1.1.17.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 4.12, 6.2.8.2, 10.1.1.2.2.1, 10.1.1.2.3.2 and 6.2.4.2, and TS 24.380, clauses 9.2.2.2.2, 9.2.2.3.2 and 9.2.2.4.6. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.1.2.2.1]

Upon receiving a request from an MCPTT user to establish an MCPTT group session using an MCPTT group identity identifying a prearranged MCPTT group within the pre-established session, the MCPTT client shall generate a SIP REFER request as specified in IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], and in accordance with the UE procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client shall follow the procedures specified in subclause 10.1.2.2.2.1 with the clarification in step 3) of subclause 10.1.2.2.2.1 that:

- 1) the <entry> element in the application/resource-lists MIME body shall contain a "uri" attribute set to the prearranged MCPTT group identity;
- 2) the <session-type> element of the application/vnd.3gpp.mcptt-info MIME body in the hname "body" URI header field shall be set to a value of "prearranged"; and
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2.

[TS 24.379, clause 6.2.8.2]

When the MCPTT user initiates a broadcast group call, the MCPTT client:

- 1) in the case of the prearranged group call is initiated on-demand, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body the <broadcast-ind> element set to "true" as defined in clause F.1; and
- 2) in the case the prearranged group call is initiated using a pre-established session, shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the "body" URI header field in the Refer-To header field the <broadcast-ind> element set to "true" as defined in clause F.1.

[TS 24.379, clause 10.1.1.2.3.2]

When an MCPTT client wants to leave the MCPTT session within a pre-established session, the MCPTT client shall follow the procedures as specified in subclause 6.2.4.2.

[TS 24.379, clause 6.2.4.2]

Upon receiving a request from an MCPTT user to leave an MCPTT session within a pre-established session, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to leave;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP REFER request, the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 9.2.2.2.2]

When a pre-established session is created between the MCPTT client and the participating MCPTT function, as specified in 3GPP TS 24.379 [2], the MCPTT client:

1. shall initialize any needed user plane resources for the pre-established session as specified in 3GPP TS 24.379 [2]; and
2. shall enter the 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or
2. Otherwise the MCPTT client:
 - a. shall send the Acknowledgement message with the Reason Code field set to 'Busy' or 'Not Accepted'; and
 - b. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.4.6]

Upon receiving a 2xx response to the sent SIP REFER request as described in 3GPP TS 24.379 [2] when the call is released, but the Pre-established Session is kept alive the MCPTT client:

1. shall enter the 'U: Pre-established session not in use' state; and
2. shall terminate the instance of 'Floor participant state transition diagram for basic operation' state machine as specified in subclause 6.2.4.

6.1.1.17.3 Test description

6.1.1.17.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.17.3.2 Test procedure sequence

Table 6.1.1.17.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a broadcast group call using the pre-established session with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1 to establish a broadcast group call with automatic commencement mode? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 6 | Make the UE (MCPTT client) leave the session. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.4.3-1? | - | - | 2 | P |
| 8 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.17.3.3 Specific message contents

Table 6.1.1.17.3.3-1: SIP REFER from the UE (step 2, Table 6.1.1.17.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1

| Information Element | Value/remark | Comment | Reference | Condition |
|---------------------|---|----------------|-----------|-----------|
| Message-body | | | | |
| MIME body part | | Resource-Lists | | |
| MIME-part-body | Resource-Lists as described in Table 6.1.1.17.3.3-3 | | | |

Table 6.1.1.17.3.3-2: Void

Table 6.1.1.17.3.3-3: Resource-lists in SIP REFER (Table 6.1.1.17.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.1.17.3.3-3A

Table 6.1.1.17.3.3-3A: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.1.17.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition GROUP-CALL

| Information Element | Value/remark | Comment | Reference | Condition |
|---------------------|--|-------------------|-----------|-----------|
| body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.17.3.3-3B | | | |

Table 6.1.1.17.3.3-3B: MCPTT-Info (Table 6.1.1.17.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER, BROADCAST-CALL |
|---|

Table 6.1.1.17.3.3-4..5: Void**Table 6.1.1.17.3.3-6: SIP 200 (OK) from the SS (step 2, Table 6.1.1.17.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)**

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP |
|---|

Table 6.1.1.17.3.3-7: Connect (step 2, Table 6.1.1.17.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition GROUP-CALL, ACK |
|---|

6.1.1.18 On-network / Broadcast Group Call using pre-established session / Automatic Commencement Mode / Server originated Pre-established Session Release with associated MCPTT session / Client Terminated (CT)

6.1.1.18.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service and having a pre-established session with the MCPTT Server }
ensure that {
  when { the MCPTT Server requests the establishment of an MCPTT Broadcast Group Call using a pre-established session requesting Automatic Commencement Mode to the UE (MCPTT Client) by sending a Connect }
  then { UE (MCPTT Client) accepts the Broadcast Group Call by sending an Acknowledgement }
}
```

(2)

```
with { UE (MCPTT Client) having accepted the Broadcast Group Call }
ensure that {
  when { the MCPTT Server sends a Floor taken request }
  then { the user is notified about the type of call }
}
```

(3)

```
with { UE (MCPTT Client) having an ongoing Broadcast Group Call using a pre-established session with Automatic Commencement Mode }
ensure that {
  when { the MCPTT Server wants to terminate the ongoing MCPTT Broadcast Group Call and sends a Disconnect }
  then { UE (MCPTT Client) accepts the ending of the MCPTT Group Call by sending an Acknowledgement }
}
```

6.1.1.18.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.380, clauses 4.1.2.2, 4.1.2.3, 9.2.2.3.2, 9.2.2.3.4 and 6.2.4.3.3. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.380, clause 4.1.2.2]

For a pre-arranged group call if the controlling MCPTT function as triggered by an originating group member initiates a call as specified in 3GPP TS 24.379 [2], the participating MCPTT function which serves the terminating MCPTT client sends a Connect message to all affiliated MCPTT clients of this group. After the reception of the Connect message the terminating MCPTT client sends an Acknowledgment message by indicating that the connection is accepted or by indicating that the connection is not accepted. If the connection is accepted by the terminating MCPTT client, the floor control for this call continues as specified in clause 6.

NOTE: If a terminating client does not have an available pre-established session, the call setup proceeds as in on-demand call setup as specified in 3GPP TS 24.379 [2].

[TS 24.380, clause 4.1.2.3]

When a call is released by the controlling MCPTT function (as specified in 3GPP TS 24.379 [2]), the participating MCPTT function sends a Disconnect message to all MCPTT clients which used a pre-established session for this call. Then the call is released (see also 3GPP TS 24.379 [2]) and the pre-established session can be used for another call. When an MCPTT client leaves a call (as specified in 3GPP TS 24.379 [2]) which was setup over a pre-established session without releasing the pre-established session, this pre-established session can be used for another call.

TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or
2. Otherwise the MCPTT client:
 - a. shall send the Acknowledgement message with the Reason Code field set to 'Busy' or 'Not Accepted'; and
 - b. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 9.2.2.3.4]

Upon reception of a Disconnect message the MCPTT client:

1. if the first bit in the subtype of the Disconnect message is set to '1' (acknowledgement is required), shall send the Acknowledgement message with the Reason Code set to 'Accepted'; and
2. shall remain in 'U: Pre-established session not in use' state.

[TS 24.380, clause 6.2.4.3.3]

Upon receiving the Floor Taken message, the floor participant:

1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '2' (Floor Taken); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide a floor taken notification to the user;
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. should start the optional timer T103 (End of RTP media); and

5. shall remain in the 'U: has no permission' state.

6.1.1.18.3 Test description

6.1.1.18.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.18.3.2 Test procedure sequence

Table 6.1.1.18.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT Call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.8.3-1? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| 3 | The SS sends a Floor Taken message with the B-bit set to '1' (broadcast group call) | <-- | Floor Taken | - | - |
| 4 | Check: Does the UE (MCPTT client) provide notification to the user indicating a broadcast call? (NOTE 1) | - | - | 2 | P |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.5.3-1? | - | - | 3 | P |
| 6 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.18.3.3 Specific message contents

Table 6.1.1.18.3.3-1: Connect (step 1, Table 6.1.1.18.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.8.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition GROUP-CALL, ACK | | | |
|---|--------------|-------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Answer State field | | | |
| Answer State | "0" | unconfirmed | |

Table 6.1.1.18.3.3-2: Floor Taken (step 3, Table 6.1.1.18.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "0100010000000000" | bit B=1 (Broadcast call) bit F=1 (Queueing supported) | |

6.1.1.19 On-network / On-demand Pre-arranged Group Call / Active functional alias / Client Originated (CO)

6.1.1.19.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
and implicit floor control using an active functional alias }
  then { UE (MCPTT Client) requests On-demand Automatic Commencement Mode Pre-arranged Group Call
establishment with implicit floor control using an active functional alias by sending a SIP INVITE
message, and, after indication from the MCPTT Server that the call was established and receiving a
Floor Granted message, notifies the MCPTT User }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User requests to terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

6.1.1.19.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.1, 6.2.4.1, TS 24.380, clauses 6.2.4.2.2, 6.2.4.4.2. Unless otherwise stated, these are Rel-15 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;

- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in subclause 9A.2.1.3.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

6.1.1.19.3 Test description

6.1.1.19.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT Client)

- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'UE initiated MCPTT functional alias status determination and subscription' as specified in TS 36.579-1 [2] clause 5.3A.9.
- The UE has performed procedure 'UE initiated MCPTT functional alias status change' as specified in TS 36.579-1 [2] clause 5.3A.10.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.19.3.2 Test procedure sequence

Table 6.1.1.19.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call using the active functional alias with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.19.3.3 Specific message contents

Table 6.1.1.19.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.19.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.19.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.19.3.3-3 | | | |

Table 6.1.1.19.3.3-2: SDP in SIP INVITE (Table 6.1.1.19.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.1.19.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.1.19.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER | | | | |
|---|--|---------|-----------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| functional-alias-URI | encrypted (NOTE 1) <functional-alias-URI> with mcpttURI set to px_MCPTT_ID_FA_A | | TS 24.379 [9] clause F.1 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.1.19.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.1.19.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.19.3.3-5 | | | |

Table 6.1.1.19.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.19.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

6.1.1.20 On-network / On-demand Pre-arranged Group Call / Multi Talker

6.1.1.20.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
and implicit floor control }
  then { UE (MCPTT Client) requests On-demand Automatic Commencement Mode Pre-arranged Group Call
establishment with implicit floor control by sending a SIP INVITE message, and, after indication

```

```

from the MCPTT Server that the call was established and receiving a Floor Granted message, notifies
the MCPTT User }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the (MCPTT Client) receives multi-talker floor control messages from the SS (MCPTT Server)
}
  then { UE (MCPTT Client) notifies the MCPTT User }
}

```

(3)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User requests terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

6.1.1.20.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.1, 6.2.4.1, TS 24.380, clauses 6.2.4.2.2, 6.2.4.4.2, 6.2.4.5.8, 6.2.4.5.9. Unless otherwise stated, these are Rel-15 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;

13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;

14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "prearranged";
- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in subclause 9A.2.1.3.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and

- b. shall include the Source field set to '0' (the floor participant is the source);
- 2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

- 3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
- 4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
- 5. shall stop the optional timer T103 (End of RTP media), if running;
- 6. shall stop timer T101 (Floor Request); and
- 7. shall enter the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.8]

Upon receiving a Floor Taken message:

- 1. if the G-bit in the Floor Indicator set to '1' (Dual Floor) the floor participant:
 - a. shall inform the user that the call is overridden without revoke;
 - b. shall store an indication that the participant is overridden without revoke; and
 - c. shall remain in the 'U: has permission' state; and
- 2. if the I-bit in the Floor Indicator set to '1' (Multi-talker) the floor participant:
 - a. may provide a floor taken notification to the user;
 - b. should start the optional timer T103 (End of RTP media) for the participant for which Floor Taken message was received;
 - c. shall provide a notification to the user indicating the type of call and may provide a list of current talkers; and
 - d. shall remain in the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.9]

Upon receiving the Floor Release Multi Talker message, the floor participant:

- 1. shall provide a notification to the user indicating that the participant has released the floor in a multi-talker group; and
- 2. shall remain in the 'U: has permission' state.

6.1.1.20.3 Test description

6.1.1.20.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT Client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The <multi-talker-control> element of the MCPTT Group Configuration Defaults as specified in TS 36.579-1 [2] Table 5.5.7.1-1 is set to "true".
- The <max-number-simultaneous-talkers> element of the MCPTT Group Configuration Defaults as specified in TS 36.579-1 [2] Table 5.5.7.1-1 is set to "2".
- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.20.3.2 Test procedure sequence

Table 6.1.1.20.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|----------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 4 | The SS (MCPTT server) sends a Floor Taken message with I-bit in the Floor Indicator set to '1' (Multi-talker). | <-- | Floor Taken | - | - |
| 5 | Check: Does the UE (MCPTT client) provide notification to the user indicating a multi-talker call? (NOTE 1) | - | - | 2 | P |
| 6 | The SS (MCPTT server) sends a Floor Release Multi Talker message. | <-- | Floor Release Multi Talker | - | - |
| 7 | Check: Does the UE (MCPTT client) provide notification to the user indicating that the participant has released the floor in a multi-talker group? (NOTE 1) | - | - | 2 | P |
| 8 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 3 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.1.20.3.3 Specific message contents

Table 6.1.1.20.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.20.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.20.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.20.3.3-3 | | | |

Table 6.1.1.20.3.3-2: SDP in SIP INVITE (Table 6.1.1.20.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.1.20.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.1.20.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFERER |
|---|

Table 6.1.1.20.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.1.20.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.20.3.3-5 | | | |

Table 6.1.1.20.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.20.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.1.1.20.3.3-6: Void**Table 6.1.1.20.3.3-7: Floor Taken (step 4, Table 6.1.1.20.3.2-1)**

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition Multi-Talker |
|---|

6.1.1.21 On-network / On-demand Pre-arranged Group Call / No Implicit Floor Control / Client Originated (CO)

6.1.1.21.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
  requesting force of Automatic Commencement Mode at the invited MCPTT client(s) and without implicit
  floor control }
  then { UE (MCPTT Client) sends a SIP INVITE message }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call without
implicit floor control }
ensure that {
  when { the MCPTT User requests to speak (e.g. pressing the PTT button) }
  then { UE (MCPTT Client) sends a Floor Request message and respects the floor control imposed by
the MCPTT Server }
}
```

(3)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call without
implicit floor control }
ensure that {
  when { the MCPTT User wants to terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}
```

6.1.1.21.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 10.1.1.2.1.1, 6.2.4.1, TS 24.380, clauses 6.2.4.2.2, 6.2.4.3.5, 6.2.4.4.2. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirming", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirming" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";

- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in subclause 9A.2.1.3.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in subclause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];

- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.3.5]

Upon receiving an indication from the user to request permission to send media, the floor participant:

1. shall send the Floor Request message toward the floor control server; The Floor Request message:
 - a. if a different priority than the normal priority is required, shall include the Floor Priority field with the priority not higher than negotiated with the floor control server as specified in subclause 14.3.3;
 - b. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types; and
 - c. shall include the Location field:
 - i. if the current location of the talker is not available or is not to be reported according to the MCPTT user profile, then the location type is set to '0' (Not provided); or
 - ii. if the current location of the talker is available and may be reported according to the MCPTT user profile, then the location type and location value are set as specified in table 8.2.3.21-3;
2. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1; and
3. shall enter the 'U: pending Request' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:

- a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;
- NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
 4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
 5. shall stop the optional timer T103 (End of RTP media), if running;
 6. shall stop timer T101 (Floor Request); and
 7. shall enter the 'U: has permission' state.

6.1.1.21.3 Test description

6.1.1.21.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.1.21.3.2 Test procedure sequence

Table 6.1.1.21.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and without implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and without implicit floor control according to option a of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 5 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 2 | P |
| 6 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 3 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.1.21.3.3 Specific message contents

Table 6.1.1.21.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.1.21.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.21.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.1.21.3.3-3 | | | |

Table 6.1.1.21.3.3-2: SDP in SIP INVITE (Table 6.1.1.21.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER |
|--|

Table 6.1.1.21.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.1.21.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, GROUP-CALL |
|---|

Table 6.1.1.21.3.3-4: SIP 200 (OK) from the SS(step 2, Table 6.1.1.21.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.1.21.3.3-5 | | | |

Table 6.1.1.21.3.3-5: SDP in SIP 200 (OK) (Table 6.1.1.21.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER |
|---|
|---|

6.1.2 Chat Group Calls

6.1.2.1 Void

6.1.2.2 On-network / Chat Group Call Using Pre-established Session Including Emergency and Imminent Peril Calls / Client Server originated Pre-established Session Release with associated MCPTT session / Client Origination (CO)

6.1.2.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT group session using an MCPTT group
identity identifying a chat MCPTT group that is within a pre-established session}
  then { UE (MCPTT Client) requests to join the Chat Group Call within a pre-established session
by generating a SIP REFER message and, after indication from the MCPTT Server that the join request
has been accepted, the user can participate in the group call }
}
```

(2)

```
with { UE (MCPTT Client) having established a Chat Group Call within a pre-established session }
ensure that {
  when { the MCPTT User (MCPTT Client) requests the origination of an emergency group call }
  then { UE (MCPTT Client) requests the set up and is able to join an emergency group call, or if
unauthorised indicates to the user that they are not authorised to set up emergency calls and no
call is set up }
}
```

(3)

```
with { UE (MCPTT Client) having established a Chat Group Call within a pre-established session }
ensure that {
  when { the MCPTT User (MCPTT Client) requests the origination of an imminent peril group call }
  then { UE (MCPTT Client) requests the set up and is able to join an imminent peril group call,
or if unauthorised indicates to the user that they are not authorised to set up imminent peril calls
and no call is set up }
}
```

(4)

```
with { UE (MCPTT Client) having established a Chat Group Call within a pre-established session }
ensure that {
  when { the UE (MCPTT Client) wishes to leave the MCPTT session within a pre-established session }
  then { UE (MCPTT Client) initiates leaving by sending a SIP REFER and leaves the call }
}
```

6.1.2.2.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 4.9, 6.2.4.2, 10.1.2.2.2, 10.1.2.2.3.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 4.9]

When establishing a pre-established session, the MCPTT client negotiates the media parameters, including establishing IP addresses and ports using interactive connectivity establishment (ICE) as specified in IETF RFC 5245 with the participating MCPTT function, prior to using the pre-established session for establishing MCPTT sessions with other MCPTT users.

The pre-established session can later be used in MCPTT calls. This avoids the need to negotiate media parameters (including evaluating ICE candidates) and reserving bearer resources during the MCPTT call establishment that results in delayed MCPTT call establishment.

The use of pre-established session on the origination side is compatible with the use of on demand session on the termination side. The use of pre-established session on the termination side is compatible with the use of on demand session on the origination side.

[TS 24.379, clause 10.1.2.2.2]

Upon receiving a request from an MCPTT user to establish an MCPTT group session using an MCPTT group identity identifying a chat MCPTT group within the pre-established session, the MCPTT client shall generate a SIP REFER request as specified in IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], and in accordance with the UE procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request URI of the SIP REFER request to the session identity of the pre-established session;
- 2) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL;
- 3) shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to the chat group identity, extended with the following URI header fields:

NOTE: Characters that are not formatted as ASCII characters are escaped in the following URI header fields;

- a) the Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- b) an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6]; and
- c) an hname "body" URI header field populated with:
 - i) an application/sdp MIME body containing an SDP offer, if the session parameters of the pre-established session require modification or if implicit floor control is required, according to the conditions specified in subclause 6.4; and
 - ii) an application/vnd.3gpp.mcptt-info MIME body with:
 - A) the <session-type> element set to a value of "chat"; and
 - B) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;
- 4) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT group call and the MCPTT emergency state is already set:
 - a) if this is an authorised request for an MCPTT emergency group call as determined by the procedures of subclause 6.2.8.8.1.8, shall comply with the procedures in subclause 6.2.8.1.1; and

- b) if this is an unauthorised request for an MCPTT emergency group call as determined in step a) above, should indicate to the MCPTT user that they are not authorised to initiate an MCPTT emergency group call;

...

- 6) if the MCPTT user has requested the origination of an MCPTT imminent peril group call:

- a) if this is an authorised request for an MCPTT imminent peril group call as determined by the procedures of subclause 6.2.8.8.1.8, shall comply with the procedures in subclause 6.2.8.1.9;
- b) if this is an unauthorised request for an MCPTT imminent peril group call as determined in step a) above, should indicate to the MCPTT user that they are not authorised to initiate an MCPTT imminent peril group call;

...

- 8) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];

- 9) shall include the following according to IETF RFC 4488 [22]:

- a) the option tag "norefersub" in the Supported header field; and
- b) the value "false" in the Refer-Sub header field.

- 10) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session;

- 11) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP REFER request according to IETF RFC 3840 [16]; and

- 12) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

On receiving a final SIP 2xx response to the SIP REFER request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

On receiving a SIP 4xx response, SIP 5xx response or a SIP 6xx response to the SIP REFER request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5 and shall skip the remaining steps.

On receiving a SIP re-INVITE request within the pre-established session targeted by the sent SIP REFER request, and if the sent SIP REFER request was a request for an MCPTT emergency group call or an MCPTT imminent peril group call, the MCPTT client:

- 1) shall perform the actions specified in subclause 6.2.8.1.16;
- 2) shall check if a Resource-Priority header field is included in the incoming SIP re-INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 3) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 4) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and
- 5) shall send the SIP 200 (OK) response towards the participating MCPTT function according to rules and procedures of 3GPP TS 24.229 [4].

On call release by interaction with the media plane as specified in subclause 9.2.2 of 3GPP TS 24.380 [5] if the sent SIP REFER request was a request for an MCPTT emergency group call or an MCPTT imminent peril group call, the MCPTT client shall perform the procedures specified in subclause 6.2.8.1.17.

[TS 24.379, clause 6.2.4.2]

Upon receiving a request from an MCPTT user to leave an MCPTT session within a pre-established session, the MCPTT client:

...

- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to leave;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

[TS 24.379, clause 10.1.2.2.3.2]

When an MCPTT client wants to leave the MCPTT session within a pre-established session, the MCPTT client shall follow the procedures as specified in subclause 6.2.4.2.

6.1.2.2.3 Test description

6.1.2.2.3.1 Pre-test conditions

System Simulator:

SS (MCPTT server)

For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.2.3.2 Test procedure sequence

Table 6.1.2.2.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---------------------|--|------------------|---------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a chat group call using the pre-established session with implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1 to establish a chat group call with implicit floor control? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 6 | The SS sends Floor Granted. | <-- | Floor Granted | - | - |
| 7 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 8 | The procedure 'MCPTT CT call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.5.3-1 is performed. | - | - | - | - |
| 9 | Void | - | - | - | - |
| 10 | Make the UE (MCPTT client) request the establishment of an emergency chat group call using the pre-established session. (NOTE 1) | - | - | - | - |
| 10 A | E-UTRA/EPC signalling according to TS 36.579-1 [2] clause 5.4.3 'MCX CO communication in E-UTRA' takes place | - | - | - | - |
| 11 | Check: Does the UE (MCPTT client) send a SIP REFER request with <emergency_ind> set true? | --> | SIP REFER | 2 | P |
| 12 | The SS sends a SIP 403 (Forbidden). | <-- | SIP 403 (Forbidden) | - | - |
| 12 A | The SS waits 2 seconds before it releases the RRC connection. | - | - | - | - |
| 13 | Check: Does the UE (MCPTT client) notify the user that the emergency group call is not allowed? (NOTE 1) | - | - | 2 | P |
| 14 | Make the UE (MCPTT client) request the establishment of an emergency chat group call using the pre-established session. (NOTE 1) | - | - | - | - |
| 14 A- 15 A | Check: Does the UE (MCPTT client) correctly perform steps 1a1 to 3 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1 to initiate establishment of an emergency chat group call? | - | - | 2 | P |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 starting with step 2 to establish the emergency chat group call? | - | - | 2 | P |
| 17- 17 A | Void | - | - | - | - |
| 18 | Check: Does the UE (MCPTT client) notify the user that the emergency group call has been established? (NOTE 1) | - | - | 2 | P |
| 19 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |

| | | | | | |
|---------------------|---|-----|---------------------|---|---|
| 20 | The UE (MCPTT client) performs procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.4.3-1. | - | - | - | - |
| 21 | Void | - | - | - | - |
| 22 | Make the UE (MCPTT client) request the establishment of an imminent peril chat group call using the pre-established session. (NOTE 1) | - | - | - | - |
| 22 A | E-UTRA/EPC signalling according to TS 36.579-1 [2] clause 5.4.3 'MCX CO communication in E-UTRA' takes place | - | - | - | - |
| 23 | Check: Does the UE (MCPTT client) send a SIP REFER request with <imminentperil_ind> set to true? | --> | SIP REFER | 3 | P |
| 24 | The SS sends a SIP 403 (Forbidden). | <-- | SIP 403 (Forbidden) | - | - |
| 25 | Check: Does the UE (MCPTT client) notify the user that the imminent peril group call is not allowed? (NOTE 1) | - | - | 3 | P |
| 25 A | The SS waits 2 seconds before it releases the RRC connection | - | - | - | - |
| 26 | Make the UE (MCPTT client) request the establishment of an imminent peril chat group call using the pre-established session. (NOTE 1). | - | - | - | - |
| 26 A- 27 A | Check: Does the UE (MCPTT client) correctly perform steps 1a1 to 3 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1 to initiate establishment of an imminent peril chat group call? | - | - | 3 | P |
| 28 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 starting with step 2 to establish the imminent peril chat group call? | - | - | 3 | P |
| 29- 29 A | Void | - | - | - | - |
| 30 | Check: Does the UE (MCPTT client) notify the user that the imminent peril group call has been established? (NOTE 1) | - | - | 3 | P |
| 31 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 32 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.4.3-1? | - | - | 4 | P |
| 33- 34 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.2.2.3.3 Specific message contents

Table 6.1.2.2.3.3-1: SIP REFER from the UE (Step 2, Table 6.1.2.2.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1 | | | | |
|--|---|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource list | | |
| MIME-part-body | Resource-lists as described in Table 6.1.2.2.3.3-2A | | | |

Table 6.1.2.2.3.3-2: Void**Table 6.1.2.2.3.3-2A: Resource-lists in SIP REFER (Table 6.1.2.2.3.3-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, CHAT-GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.2.2.3.3-2B |
|--|

Table 6.1.2.2.3.3-2B: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.2.2.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition CHAT-GROUP-CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.1.2.2.3.3-2C | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.2.3.3-2D | | | |

Table 6.1.2.2.3.3-2C: SDP in SIP header fields (Table 6.1.2.2.3.3-2B)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.1.2.2.3.3-2D: MCPTT-Info in SIP header fields (Table 6.1.2.2.3.3-2B)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition CHAT-GROUP-CALL, INVITE_REFER |
|--|

Table 6.1.2.2.3.3-2E: SIP 200 (OK) from the SS (Step 2, Table 6.1.2.2.3.2-1; Step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.1.2.2.3.3-2F | | | |

Table 6.1.2.2.3.3-2F: SDP in SIP 200 (OK) (Table 6.1.2.2.3.3-2E)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION IMPLICIT_GRANT_REQUESTED

Table 6.1.2.2.3.3-2G: Connect (step 2, Table 6.1.2.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition CHAT-GROUP-CALL, ACK

Table 6.1.2.2.3.3-3: SIP REFER from the UE (Steps 11, 15, Table 6.1.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition EMERGENCY-CALL, GROUP-CALL | | | | |
|--|---|---------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource list | | |
| MIME-part-body | Resource-lists as described in Table 6.1.2.2.3.3-3A | | | |

Table 6.1.2.2.3.3-3A: Resource-lists in SIP REFER (Steps 11, 15, Table 6.1.2.2.3.2-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE_ESTABLISHED_SESSION, CHAT-GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.2.2.3.3-3B

Table 6.1.2.2.3.3-3B: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.2.2.3.3-3A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition CHAT-GROUP-CALL | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.2.3.3-3C | | | |

Table 6.1.2.2.3.3-3C: MCPTT-Info in SIP header fields (Table 6.1.2.2.3.3-3B)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition EMERGENCY-CALL, CHAT-GROUP-CALL, INVITE_REFER

Table 6.1.2.2.3.3-4: Void

Table 6.1.2.2.3.3-4A: SIP 200 (OK) from the SS (Steps 15A, 27A, Table 6.1.2.2.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition REFER_RSP

Table 6.1.2.2.3.3-4B: SIP INVITE from the SS (Step 16, Table 6.1.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.2.3.3-4C | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.2.3.3-4D | | | |

Table 6.1.2.2.3.3-4C: SDP in SIP INVITE (Table 6.1.2.2.3.3-4B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.2.2.3.3-4D: MCPTT-Info in SIP INVITE (Table 6.1.2.2.3.3-4B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL, EMERGENCY-CALL | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.2.2.3.3-4E: SIP 200 (OK) from the UE (Steps 16, 28, Table 6.1.2.2.3.2-1; step 4, TS 36.579-1 [2], Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.2.3.3-4F | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.2.3.3-4G | | | |

Table 6.1.2.2.3.3-4F: SDP in SIP 200 (OK) (Table 6.1.2.2.3.3-4E)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.2.2.3.3-4G: MCPTT-Info in SIP 200 (OK) (Table 6.1.2.2.3.3-4E)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.2.2.3.3-5: SIP REFER from the UE (Steps 23, 27, Table 6.1.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition IMPERIL-CALL, CHAT-GROUP-CALL | | | | |
|---|---|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.1.2.2.3.3-5A | | | |

Table 6.1.2.2.3.3-5A: Resource-lists in SIP REFER (Table 6.1.2.2.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE_ESTABLISHED_SESSION, CHAT-GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.2.2.3.3-6A

Table 6.1.2.2.3.3-6: Void**Table 6.1.2.2.3.3-6A: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.2.2.3.3-5A)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition CHAT-GROUP-CALL | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.2.3.3-6B | | | |

Table 6.1.2.2.3.3-6B: MCPTT-Info in SIP header fields (Table 6.1.2.2.3.3-6A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition IMPERIL-CALL, CHAT-GROUP-CALL, INVITE_REFERER

Table 6.1.2.2.3.3-7: SIP INVITE from the SS (Step 28, Table 6.1.2.2.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.2.3.3-7B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.2.3.3-7C | | | |

Table 6.1.2.2.3.3-7A: Void**Table 6.1.2.2.3.3-7B: SDP in SIP INVITE (Table 6.1.2.2.3.3-7)**

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION

Table 6.1.2.2.3.3-7C: MCPTT-Info in SIP INVITE (Table 6.1.2.2.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL, IMPERIL-CALL

Table 6.1.2.2.3.3-8..9: Void

Table 6.1.2.2.3.3-10: SIP 403 (Forbidden) (Steps 12, 24, Table 6.1.2.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.19.1-1 | | | | |
|--|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Warning | | | | |
| mcptt-warn[1] | "function not allowed due to user authorisation" | | | |

6.1.2.3 Void

6.1.2.4 Void

6.1.2.5 Void

6.1.2.6 Void

6.1.2.7 On-network / Chat Group Call / Emergency Group Call / Client Originated (CO)

6.1.2.7.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Chat Group Emergency Group Call }
  then { UE (MCPTT Client) requests Chat Group Emergency Group Call by sending a SIP INVITE message and responds to the SS with correct SIP messages and provides floor granted notification to the MCPTT User }
}
```

6.1.2.7.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.2.2.1.1, TS 24.380, clause 6.2.4.4.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity, identifying a chat MCPTT group, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT chat group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;

...

- 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 7) should include the "timer" option tag in the Supported header field;
- 8) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the refresher parameter is omitted. If included, the refresher parameter shall be set to "uac";
- 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 11) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirming", the MCPTT client shall comply with the procedures in subclause 6.2.8.1.2;

...

13) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "chat";
- b) the <mcptt-request-uri> element set to the group identity; and
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

- 14) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 15) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 16) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or

...

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

6.1.2.7.3 Test description

6.1.2.7.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.7.3.2 Test procedure sequence

Table 6.1.2.7.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of an emergency chat group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a chat group call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-8 | Void | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 10 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 11 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| 12 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.2.7.3.3 Specific message contents

Table 6.1.2.7.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.2.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition EMERGENCY-CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.2.7.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.7.3.3-2 | | | |

Table 6.1.2.7.3.3-1A: SDP in SIP INVITE (Table 6.1.2.7.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.2.7.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.2.7.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition EMERGENCY-CALL, INVITE_REFERER, CHAT-GROUP-CALL |
|--|

Table 6.1.2.7.3.3-3..4: Void

Table 6.1.2.7.3.3-5: SIP 200 (OK) from the SS (step 2, Table 6.1.2.7.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.7.3.3-6 | | | |

Table 6.1.2.7.3.3-6: SDP in SIP 200 (OK) (Table 6.1.1.3.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|
|---|

Table 6.1.2.7.3.3-7: Floor Granted (step 2, Table 6.1.2.7.3.2-1; step 6a1, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY-CALL |
|---|
|---|

6.1.2.8 On-network / Chat Group Call / Emergency Group Call / Client Terminated (CT)

6.1.2.8.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT Client receives a SIP INVITE message with an emergency indication for an MCPTT
On-demand Chat Group Emergency Group Call }
then { the UE (MCPTT Client) sends a SIP 200 OK as a response to the SIP INVITE message and respects
floor control }
}

```

6.1.2.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.2.2.1.6, TS 24.380, clause 6.2.4.3.3. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.6]

This procedure is used for MCPTT emergency and MCPTT imminent peril calls when the MCPTT client is affiliated but not joined to the chat group.

In the procedures in this subclause:

- 1) emergency indication in an incoming SIP INVITE request refers to the <emergency-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

...

Upon receipt of an initial SIP INVITE request, the MCPTT client:

...

- 3) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:

- i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;
 - ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and
 - iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
- b) shall set the MCPTT emergency group state to "MEG 2: in-progress";
- ...
- 6) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
 - 7) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
 - 8) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
 - 9) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
 - 10) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. If no "refresher" parameter was included in the received SIP INVITE request the "refresher" parameter in the Session-Expires header field shall be set to "uas", otherwise shall include a "refresher" parameter set to the value received in the Session-Expires header field the received SIP INVITE request;
 - 11) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
 - 12) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4]; and
 - 13) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.3.3]

Upon receiving the Floor Taken message, the floor participant:

- 1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '2' (Floor Taken); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
- 2. may provide a floor taken notification to the user;
- 3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
- 4. should start the optional timer T103 (End of RTP media); and
- 5. shall remain in the 'U: has no permission' state.

6.1.2.8.3 Test description

6.1.2.8.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.8.3.2 Test procedure sequence

Table 6.1.2.8.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|------|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish an emergency chat group call with automatic commencement mode? | - | - | 1 | P |
| 1A-3 | Void | - | - | - | - |
| 3A | The SS (MCPTT server) sends a Floor Taken message with request for acknowledgement. | <-- | Floor Taken | - | - |
| 3B | Check: Does the UE (MCPTT client) respond with a Floor Ack message? | --> | Floor Ack | 1 | P |
| 4 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2], Table 5.3.12.3-1 is performed. | - | - | - | - |
| 5 | Void | - | - | - | - |

6.1.2.8.3.3 Specific message contents

Table 6.1.2.8.3.3-1: SIP INVITE from the SS (step 1, Table 6.1.2.8.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.8.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |

| | | | | |
|----------------|---|--|--|--|
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.8.3.3-1B | | | |
|----------------|---|--|--|--|

Table 6.1.2.8.3.3-1A: SDP in SIP INVITE (Table 6.1.2.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER

Table 6.1.2.8.3.3-1B: MCPTT-Info in SIP INVITE (Table 6.1.2.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL, EMERGENCY-CALL

Table 6.1.2.8.3.3-2: SIP 200 (OK) from the UE(step 1, Table 6.1.2.8.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.8.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.8.3.3-2B | | | |

Table 6.1.2.8.3.3-2A: SDP in SIP 200 (OK) (Table 6.1.2.8.3.3-2)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER

Table 6.1.2.8.3.3-2B: MCPTT-Info in SIP 200 (OK) (Table 6.1.2.8.3.3-2)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP

Table 6.1.2.8.3.3-3: Floor Taken (step 3A, Table 6.1.2.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition EMERGENCY-CALL, ACK

Table 6.1.2.8.3.3-4..5: Void

6.1.2.9 On-network / Chat Group Call / Imminent Peril Group Call / Client Originated (CO)

6.1.2.9.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Chat Group Imminent Peril Group Call }
  then { UE (MCPTT Client) sends a SIP INVITE message to setup the Chat Group Imminent Peril Group Call and provides floor granted notification to the MCPTT User }
}
    
```

6.1.2.9.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.2.2.1.1, TS 24.380, clause 6.2.4.4.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity, identifying a chat MCPTT group, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
- 3) shall include the `g.3gpp.mcptt` media feature tag and the `g.3gpp.icsi-ref` media feature tag with the value of `"urn:urn-7:3gpp-service.ims.icsi.mcptt"` in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field containing the `g.3gpp.mcptt` media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) shall include the ICSI value `"urn:urn-7:3gpp-service.ims.icsi.mcptt"` (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the `g.3gpp.icsi-ref` media feature tag containing the value of `"urn:urn-7:3gpp-service.ims.icsi.mcptt"` along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 7) should include the "timer" option tag in the Supported header field;
- 8) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the refresher parameter is omitted. If included, the refresher parameter shall be set to "uac";
- 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

- 12) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirming" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 13) shall contain an `application/vnd.3gpp.mcptt-info+xml` MIME body with the `<mcpttinfo>` element containing the `<mcptt-Params>` element with:
 - a) the `<session-type>` element set to a value of "chat";
 - b) the `<mcptt-request-uri>` element set to the group identity; and
 - c) the `<mcptt-client-id>` element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

- 14) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;

15) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

16) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

...

- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

6.1.2.9.3 Test description

6.1.2.9.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.9.3.2 Test procedure sequence

Table 6.1.2.9.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of an imminent peril chat group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish an imminent peril chat group call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-8 | Void | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 10 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 11 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| 12 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.2.9.3.3 Specific message contents

Table 6.1.2.9.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.2.9.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition IMPERIL-CALL | | | | |
|---|--------------|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |

| | | | | |
|----------------|--|-------------------|--|--|
| MIME-part-body | SDP Message as described in Table 6.1.2.9.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.9.3.3-2 | | | |

Table 6.1.2.9.3.3-1A: SDP in SIP INVITE (Table 6.1.2.9.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.2.9.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.2.9.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition IMPERIL-CALL, CHAT-GROUP-CALL |
|--|

Table 6.1.2.9.3.3-2A: SIP 200 (OK) from the SS (step 2, Table 6.1.2.9.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.9.3.3-2B | | | |

Table 6.1.2.9.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.1.3.3.3-2A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.1.2.9.3.3-3: Floor Granted (step 2, Table 6.1.2.9.3.2-1; step 6a1, TS 36.579-1 [2] Table 5.3A.1.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition IMPERIL-CALL |
|---|

6.1.2.10 On-network / Chat Group Call / Imminent Peril Group Call / Client Terminated (CT)

6.1.2.10.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT Client receives a SIP INVITE message for an On-demand MCPTT Chat Group Imminent
  Peril Group Call }
  then { the UE (MCPTT Client) sends a SIP 200 OK as a response to the SIP INVITE message and respects
  floor control }
}

```

6.1.2.10.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clause 10.1.2.2.1.6, TS 24.380, clause 6.2.4.3.3. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.6]

This procedure is used for MCPTT emergency and MCPTT imminent peril calls when the MCPTT client is affiliated but not joined to the chat group.

In the procedures in this subclause:

...

- 2) imminent peril indication in an incoming SIP INVITE request refers to the <imminentperil-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body.

Upon receipt of an initial SIP INVITE request, the MCPTT client:

...

- 4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:
 - i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 5) shall check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 6) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 7) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 8) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 9) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 10) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. If no "refresher" parameter was included in the received SIP INVITE request the "refresher" parameter in the Session-Expires header field shall be set to "uas", otherwise shall include a "refresher" parameter set to the value received in the Session-Expires header field the received SIP INVITE request;
- 11) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
- 12) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4]; and
- 13) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.3.3]

Upon receiving the Floor Taken message, the floor participant:

1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '2' (Floor Taken); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide a floor taken notification to the user;

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. should start the optional timer T103 (End of RTP media); and
5. shall remain in the 'U: has no permission' state.

6.1.2.10.3 Test description

6.1.2.10.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.10.3.2 Test procedure sequence

Table 6.1.2.10.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|------|--|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish an imminent peril chat group call with automatic commencement mode? | - | - | 1 | P |
| 1A-3 | Void | - | - | - | - |
| 3A | The SS (MCPTT server) sends a Floor Taken message with request for acknowledgement. | <-- | Floor Taken | - | - |
| 3B | Check: Does the UE (MCPTT client) respond with a Floor Ack message? | --> | Floor Ack | 1 | P |
| 4 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2], Table 5.3.12.3-1 is performed. | - | - | - | - |
| 5 | Void | - | - | - | - |

6.1.2.10.3.3 Specific message contents

Table 6.1.2.10.3.3-1: SIP INVITE from the SS (step 1, Table 6.1.2.10.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.10.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.10.3.3-2 | | | |

Table 6.1.2.10.3.3-1A: SDP in SIP INVITE (Table 6.1.2.10.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER |
|--|

Table 6.1.2.10.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.2.10.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition IMPERIL-CALL, CHAT-GROUP-CALL |
|--|

Table 6.1.2.10.3.3-2A: SIP 200(OK) from the UE (step 1, Table 6.1.2.10.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.10.3.3-2B | | | |
| MIME body part | | MCPTT-Info | | |

| | | | | |
|----------------|--|--|--|--|
| MIME part body | MCPTT-Info as described in Table 6.1.2.10.3.3-2C | | | |
|----------------|--|--|--|--|

Table 6.1.2.10.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.2.10.3.3-2A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.1.2.10.3.3-2C: MCPTT-Info in SIP 200 (OK) (Table 6.1.2.10.3.3-2A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

Table 6.1.2.10.3.3-3: Floor Taken (step 3A, Table 6.1.2.10.3.2-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition IMPERIL-CALL |
|---|

Table 6.1.2.10.3.3-4..5: Void

6.1.2.11 On-network / Chat Group Call / Join Chat Group Session / Upgrade to Emergency / Cancel Emergency / Upgrade to Imminent Peril / Cancel Imminent Peril / Client Originated (CO)

6.1.2.11.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT On-demand Chat Group Call with implicit floor control }
  then { UE (MCPTT Client) sends a SIP INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Chat Group Call }
ensure that {
  when { the MCPTT User requests to upgrade the MCPTT group session to an emergency condition }
  then { UE (MCPTT Client) sends a SIP re-INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}
```

(3)

```
with { UE (MCPTT Client) having an ongoing Emergency Chat Group Call }
ensure that {
  when { the MCPTT User requests to cancel the in-progress emergency condition }
  then { UE (MCPTT Client) sends a SIP re-INVITE message and upon receipt of a SIP 2xx response considers the emergency condition cancelled and correctly interacts with the media plane }
}
```

(4)

```
with { UE (MCPTT Client) having an ongoing On-demand Chat Group Call }
ensure that {
  when { the MCPTT User requests to upgrade the MCPTT group session to an imminent peril condition }
  then { UE (MCPTT Client) sends a SIP re-INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}
```

(5)

```

with { UE (MCPTT Client) having an ongoing Imminent Peril Chat Group Call }
ensure that {
  when { the MCPTT User requests to cancel the in-progress imminent peril condition }
  then { UE (MCPTT Client) sends a SIP re-INVITE message and upon receipt of a SIP 2xx response
        considers the imminent peril condition cancelled and correctly interacts with the media plane }
}

```

(6)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Chat Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) wants to terminate the ongoing MCPTT Chat Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

6.1.2.11.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 10.1.2.2.1.1, 6.2.4.1, 10.1.2.2.1.4, 6.2.8.1.1, 6.2.8.1.2, 6.2.8.1.4, 10.1.2.2.1.3, 10.1.2.2.1.5, TS 24.380, clauses 6.2.4.2.2, 6.2.4.5.3. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity, identifying a chat MCPTT group, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 7) should include the "timer" option tag in the Supported header field;
- 8) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the refresher parameter is omitted. If included, the refresher parameter shall be set to "uac";
- 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

- 13) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "chat";

- b) the <mcptt-request-uri> element set to the group identity; and
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

- 14) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 15) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 16) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 10.1.2.2.1.4]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to upgrade the MCPTT group session to an emergency condition or an imminent peril condition on a chat MCPTT group, the MCPTT client shall generate a SIP re-INVITE request as specified in 3GPP TS 24.229 [4], with the clarifications given below.

- 1) if the MCPTT user is requesting to upgrade the MCPTT group session to an in-progress emergency group state and is not authorised to do so as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to upgrade the MCPTT group session to an in-progress emergency group state; and
 - b) shall skip the remaining steps of the current subclause;
- 2) if the MCPTT user is requesting to upgrade the MCPTT group session to an in-progress imminent peril state and is not authorised to do so as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to upgrade the MCPTT group session to an in-progress imminent peril group state; and
 - b) shall skip the remaining steps of the current subclause;
- 3) if the MCPTT user has requested to upgrade the MCPTT group session to an MCPTT emergency call, the MCPTT client:

- a) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.1; and
 - b) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2.
- 4) if the MCPTT user has requested to upgrade the MCPTT group session to an MCPTT imminent peril call, the MCPTT client:
- a) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.9; and
 - b) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 5) if the SIP re-INVITE request is to be sent within an on-demand session, shall include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 6) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session;

NOTE: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session associated with an MCPTT group session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 7) if an implicit floor request is required, shall indicate this as specified in subclause 6.4;
- 8) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2; and
- 9) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall perform the actions specified in subclause 6.2.8.1.4.

[TS 24.379, clause 6.2.8.1.1]

This subclause is referenced from other procedures.

When the MCPTT emergency state is set and the MCPTT user is authorised to initiate an MCPTT emergency group call on the targeted MCPTT group as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client:

- 1) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the SIP INVITE request or SIP REFER request, an <emergency-ind> element set to "true" and if the MCPTT emergency group call state is set to "MEGC 1: emergency-gc-capable", shall set the MCPTT emergency group call state to "MEGC 2: emergency-call-requested";
- 2) if the MCPTT user has also requested an MCPTT emergency alert to be sent and this is an authorised request for MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6, and the MCPTT emergency alert state is set to "MEA 1: no-alert", shall:
 - a) set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "true" and set the MCPTT emergency alert state to "MEA 2: emergency-alert-confirm-pending"; and
 - b) include in the SIP INVITE request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 3) if the MCPTT user has not requested an MCPTT emergency alert to be sent and the MCPTT emergency alert state is set to "MEA 1: no-alert", shall set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "false"; and
- 4) if the MCPTT client emergency group state of the group is set to a value other than "MEG 2: in-progress" set the MCPTT client emergency group state of the MCPTT group to "MEG 4: confirm-pending".

NOTE 1: This is the case of an MCPTT user already being in the MCPTT emergency state it initiated previously while originating an MCPTT emergency group call or MCPTT emergency alert. All group calls the MCPTT user originates while in MCPTT emergency state will be MCPTT emergency group calls.

When the MCPTT emergency state is clear and the MCPTT emergency group call state is set to "MEGC 1: emergency-gc-capable" and the received SIP request contains an authorised request for MCPTT emergency group call as determined by the procedures of subclause 6.2.8.1.8, the MCPTT client shall set the MCPTT emergency state and perform the following actions:

- 1) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the SIP INVITE request or SIP REFER request an <emergency-ind> element set to "true" and set the MCPTT emergency group call state to "MEGC 2: emergency-call-requested" state;
- 2) if the MCPTT user has also requested an MCPTT emergency alert to be sent and this is an authorised request for MCPTT emergency alert as determined by the procedures of subclause 6.2.8.1.6, shall:
 - a) include in the application/vnd.3gpp.mcptt-info+xml MIME body the <alert-ind> element set to "true" and set the MCPTT emergency alert state to "MEA 2: emergency-alert-confirm-pending"; and
 - b) include in the SIP INVITE request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 3) if the MCPTT user has not requested an MCPTT emergency alert to be sent, shall set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "false"; and
- 4) if the MCPTT client emergency group state of the group is set to a value other than "MEG 2: in-progress" shall set the MCPTT client emergency group state of the MCPTT group to "MEG 4: confirm-pending".

NOTE 2: This is the case of an initial MCPTT emergency group call and optionally an MCPTT emergency alert being sent. As the MCPTT emergency state is not sent, there is no MCPTT emergency alert outstanding.

NOTE 3: An MCPTT group call originated by an affiliated member of an MCPTT group which is in an in-progress emergency state (as tracked on the MCPTT client by the MCPTT client emergency group state) but is not in an MCPTT emergency state of their own will also be an MCPTT emergency group call. The <emergency-ind> and <alert-ind> elements of the application/vnd.3gpp.mcptt-info+xml MIME body do not need to be included in this case and hence no action needs to be taken in this subclause.

[TS 24.379, clause 6.2.8.1.2]

This subclause is referenced from other procedures.

If the MCPTT emergency group call state is set to either "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" and this is an authorised request for an MCPTT emergency group call as determined by the procedures of subclause 6.2.8.1.8, or the MCPTT client emergency group state of the group is set to "MEG 2: in-progress", the MCPTT client shall include in the SIP INVITE request or SIP REFER request a Resource-Priority header field populated with the values for an MCPTT emergency group call as specified in subclause 6.2.8.1.15.

NOTE: The MCPTT client ideally would not need to maintain knowledge of the in-progress emergency state of the group (as tracked on the MCPTT client by the MCPTT client emergency group state) but can use this knowledge to provide a Resource-Priority header field set to emergency level priority, which starts the infrastructure priority adjustment process sooner than otherwise would be the case.

If this is an authorised request to cancel the MCPTT emergency group call as determined by the procedures of subclause 6.2.8.1.7, and the MCPTT client emergency group state of the group is "no-emergency" or "cancel-pending", the MCPTT client shall include in the SIP INVITE request or SIP REFER request a Resource-Priority header field populated with the values for a normal MCPTT group call as specified in subclause 6.2.8.1.15.

[TS 24.379, clause 6.2.8.1.4]

In the procedures in this subclause, a priority group call refers to an MCPTT emergency group call or an MCPTT imminent peril group call.

On receiving a SIP 2xx response to a SIP request for a priority group call, the MCPTT client:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted":

- a) shall set the MCPTT client emergency group state of the group to "MEG 2: in-progress" if it was not already set;
 - b) if the MCPTT emergency alert state is set to "MEA 2: emergency-alert-confirm-pending" and the SIP 2xx response to the SIP request for a priority group call does not contain a Warning header field as specified in subclause 4.4 with the warning text containing the mcptt-warn-code set to "149", shall set the MCPTT emergency alert state to "MEA 3: emergency-alert-initiated";
 - c) shall set the MCPTT emergency group call state to "MEGC 3: emergency-call-granted"; and
 - d) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-capable" and the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted" and the SIP 2xx response to the SIP request for an imminent peril group call does not contain a Warning header field as specified in subclause 4.4 with the warning text containing the mcptt-warn-code set to "149":
- a) set the MCPTT imminent peril group call state to "MIGC 3: imminent-peril-call-granted"; and
 - b) set the MCPTT imminent peril group state to "MIG 2: in-progress".

[TS 24.379, clause 10.1.2.2.1.3]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to cancel the in-progress emergency condition on a chat MCPTT group, the MCPTT client shall generate a SIP re-INVITE request as specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user is not authorised to cancel the in-progress emergency group state of the MCPTT group as determined by the procedures of subclause 6.2.8.1.7, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to cancel the in-progress emergency group state of the MCPTT group; and
 - b) shall skip the remaining steps of the current subclause;
- 2) shall, if the MCPTT user is cancelling an in-progress emergency condition and optionally an MCPTT emergency alert originated by the MCPTT user, include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.3;
- 3) shall, if the MCPTT user is cancelling an in-progress emergency condition and optionally an MCPTT emergency alert originated by another MCPTT user, include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.14;
- 4) shall, if the SIP re-INVITE request is to be sent within an on-demand session, include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 5) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session;

NOTE 1: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session associated with an MCPTT group session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the MCPTT speech media stream and the media-level section of the media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 6) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2; and
- 7) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request, the MCPTT client:

- 1) shall set the MCPTT emergency group state of the group to "MEG 1: no-emergency";
- 2) shall set the MCPTT emergency group call state of the group to "MEGC 1: emergency-gc-capable"; and
- 3) if the MCPTT emergency alert state is set to "MEA 4: Emergency-alert-cancel-pending", the sent SIP re-INVITE request did not contain an <originated-by> element in the application/vnd.3gpp.mcptt-info+xml MIME body and the SIP 2xx response to the SIP request for a priority group call does not contain a Warning header field as specified in subclause 4.4 with the warning text containing the mcptt-warn-code set to "149", shall set the MCPTT emergency alert state to "MEA 1: no-alert".

[TS 24.379, clause 10.1.2.2.1.5]

This subclause covers both on-demand session and pre-established sessions.

Upon receiving a request from an MCPTT user to cancel the in-progress imminent peril condition on a chat MCPTT group, the MCPTT client shall generate a SIP re-INVITE request by following the procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user is not authorised to cancel the in-progress imminent peril group state of the MCPTT group as determined by the procedures of subclause 6.2.8.1.10, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to cancel the in-progress imminent peril group state of the MCPTT group; and
 - b) shall skip the remaining steps of the current subclause;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.1.11;
- 3) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 4) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "chat"; and
 - b) the <mcptt-request-uri> element set to the group identity;

NOTE 1: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP re-INVITE request that is sent by the originating participating MCPTT function.

- 5) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP re-INVITE request according to IETF RFC 3840 [16];
- 6) if the SIP re-INVITE request is to be sent within an on-demand session, shall include in the SIP re-INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 7) if the SIP re-INVITE request is to be sent within a pre-established session, shall include an SDP offer in the SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and

NOTE 2: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session associated with an MCPTT group session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 8) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) shall set the MCPTT imminent peril group state of the group to "MIG 1: no-imminent-peril"; and

3) shall set the MCPTT imminent peril group call state of the group to "MIGC 1: imminent-peril-gc-capable".

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.5.3]

Upon receiving an indication from the user to release the permission to send RTP media, the floor participant:

1. shall send a Floor Release message towards the floor control server. The Floor Release message:
 - a. may include the first bit in the subtype of the Floor Release message set to '1' (acknowledgement is required) as specified in subclause 8.2.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

- b. if the session is a broadcast call and if the session was established as a normal call, shall include the Floor Indicator with the A-bit set to '1' (Normal call); and
 - c. if the Floor Granted message included the G-bit set to '1' (Dual floor), shall include the Floor Indicator with the G-bit set to '1' (Dual floor);
2. shall remove the indication that the participant is overriding without revoke if this indication is stored;
3. shall remove the indication that the participant is overridden without revoke if this indication is stored;
4. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
5. shall enter the 'U: pending Release' state.

6.1.2.11.3 Test description

6.1.2.11.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.11.3.2 Test procedure sequence

Table 6.1.2.11.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a chat group call with automatic commencement mode and implicit floor request. (NOTE 1). | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a chat group call with implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 7A | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 7B | The UE (MCPTT client) performs procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1. | - | - | - | - |
| 8 | Make the UE (MCPTT client) request upgrade of the call to an emergency chat group call with implicit floor request. (NOTE 1) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to upgrade the call to an emergency call with implicit floor control? | - | - | 2 | P |
| 10-13 | Void | - | - | - | - |
| 14 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 2 | P |
| 15 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 17-18 | Void | - | - | - | - |
| 19 | Make the UE (MCPTT client) request downgrade of the call to a normal chat group call. (NOTE 1) | - | - | - | - |
| 20 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to cancel the emergency state without implicit floor control? | - | - | 3 | P |
| 20A | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 21-24 | Void | - | - | - | - |
| 24A | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |

| | | | | | |
|-------|---|-----|------------|---|---|
| 24B | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 3 | P |
| 25 | Void | - | - | - | - |
| 26 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 27 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 3 | P |
| 28-29 | Void | - | - | - | - |
| 30 | Make the UE (MCPTT client) request upgrade of the call to an imminent peril chat group call with implicit floor request. (NOTE 1). | - | - | - | - |
| 31 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to upgrade the call to an imminent peril call with implicit floor control? | - | - | 4 | P |
| 32-35 | Void | - | - | - | - |
| 36 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1). | - | - | 4 | P |
| 37 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 38 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 4 | P |
| 39-40 | Void | - | - | - | - |
| 41 | Make the UE (MCPTT client) request downgrade of the call to a normal chat group call. (NOTE 1). | - | - | - | - |
| 42 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to cancel the imminent peril state without implicit floor control? | - | - | 5 | P |
| 42A | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 43-46 | Void | - | - | - | - |
| 46A | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 46B | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 5 | P |
| 47 | Void | - | - | - | - |
| 48 | Make the UE (MCPTT client) release the floor. (NOTE 1). | - | - | - | - |
| 49 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 5 | P |

| | | | | | |
|-------|---|---|---|---|---|
| 50-51 | Void | - | - | - | - |
| 52 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 53 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 6 | P |
| 54 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.2.11.3.3 Specific message contents

Table 6.1.2.11.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.2.11.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.1.1.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.11.3.3-2 | | | |

Table 6.1.2.11.3.3-1A: SDP in SIP INVITE (Table 6.1.2.11.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.2.11.3.3-2: MCPTT-Info in SIP INVITE (Table 6.1.2.11.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT-GROUP-CALL |
|--|

Table 6.1.2.11.3.3-2A: SIP 200 (OK) from the SS (step 2, Table 6.1.2.11.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.11.3.3-2B | | | |

Table 6.1.2.11.3.3-2B: SDP in SIP 200 (OK) (Table 6.1.2.11.3.3-2A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.1.2.11.3.3-4: SIP INVITE from the UE (step 9, Table 6.1.2.11.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE, EMERGENCY-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.1.1.3.3-4A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.11.3.3-5 | | | |

Table 6.1.2.11.3.3-4A: SDP in SIP INVITE (Table 6.1.2.11.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|
|--|

Table 6.1.2.11.3.3-5: MCPTT-Info (Table 6.1.2.11.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT, GROUP-CALL, EMERGENCY-CALL |
|---|
|---|

Table 6.1.2.11.3.3-6: Void

Table 6.1.2.11.3.3-6A: SIP 200 (OK) from the SS (steps 9, 20, 31, 42, Table 6.1.2.11.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.11.3.3-6B | | | |

Table 6.1.2.11.3.3-6B: SDP in SIP 200 (OK) (Table 6.1.2.11.3.2-6A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|
|---|

Table 6.1.2.11.3.3-7: Floor Granted (step 9, Table 6.1.2.11.3.2-1; step 5, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY-CALL |
|---|
|---|

Table 6.1.2.11.3.3-8: Floor Release (step 16, Table 6.1.2.11.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition EMERGENCY-CALL |
|---|
|---|

Table 6.1.2.11.3.3-9: Floor Idle (step 16, Table 6.1.2.11.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY-CALL |
|---|
|---|

Table 6.1.2.11.3.3-10: SIP INVITE from the UE (step 20, Table 6.1.2.11.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.1.1.3.3-10A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.11.3.3-11 | | | |

Table 6.1.2.11.3.3-10A: SDP in SIP INVITE (Table 6.1.2.11.3.3-10)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER |
|--|

Table 6.1.2.11.3.3-11: MCPTT-Info in SIP INVITE (Table 6.1.2.11.3.3-10)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT-GROUP-CALL | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.2.11.3.3-12..13: Void

Table 6.1.2.11.3.3-14: SIP INVITE from the UE (step 31, Table 6.1.2.11.3.2-1; Step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE, IMPERIL-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.11.3.3-14A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.11.3.3-15 | | | |

Table 6.1.2.11.3.3-14A: SDP in SIP INVITE (Table 6.1.2.11.3.3-14)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.2.11.3.3-15: MCPTT-Info in SIP INVITE (Table 6.1.2.11.3.3-14)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT-GROUP-CALL, IMPERIL-CALL |
|--|

Table 6.1.2.11.3.3-16: Floor Granted (step 31, Table 6.1.2.11.3.2-1; step 5, TS 36.579-1 [2] Table 5.3A.6.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition IMPERIL-CALL |
|---|

Table 6.1.2.11.3.3-16A: Floor Release (step 38, Table 6.1.2.11.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition IMPERIL-CALL

Table 6.1.2.11.3.3-17: Floor Idle (step 38, Table 6.1.2.11.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition IMPERIL-CALL

Table 6.1.2.11.3.3-18: SIP INVITE from the UE (step 42, Table 6.1.2.11.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.11.3.3-18A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.11.3.3-19 | | | |

Table 6.1.2.11.3.3-18A: SDP in SIP INVITE (Table 6.1.2.11.3.3-18)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER

Table 6.1.2.11.3.3-19: MCPTT-Info in SIP INVITE (Table 6.1.2.11.3.3-18)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition CHAT-GROUP-CALL | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| imminentperil-ind | Encrypted <imminentperil-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.1.2.11.3.3-20: Void

6.1.2.12 On-network / Chat Group Call / Join Chat Group Session / Upgrade to Emergency / Cancel Emergency / Upgrade to Imminent Peril / Cancel Imminent Peril / Client Originated (CT)

6.1.2.12.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT On-demand Chat Group Call with implicit floor control }
  then { UE (MCPTT Client) sends a SIP INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Chat Group Call }
ensure that {
  when { UE (MCPTT Client) receives a SIP re-INVITE message to upgrade the MCPTT group session to an
emergency condition }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and respects the floor control
imposed by the MCPTT Server }
}

```

(3)

```

with { UE (MCPTT Client) participating in an ongoing Emergency Chat Group Call }
ensure that {
  when { UE (MCPTT Client) receives a SIP re-INVITE message to cancel the in-progress emergency
condition }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and respects the floor control
imposed by the MCPTT Server }
}

```

(4)

```

with { UE (MCPTT Client) participating in an ongoing On-demand Chat Group Call }
ensure that {
  when { UE (MCPTT Client) receives a SIP re-INVITE message to upgrade the MCPTT group session to an
imminent peril condition }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and respects the floor control
imposed by the MCPTT Server }
}

```

(5)

```

with { UE (MCPTT Client) participating in an ongoing Emergency Chat Group Call }
ensure that {
  when { UE (MCPTT Client) receives a SIP re-INVITE message to cancel the in-progress imminent peril
condition }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and respects the floor control
imposed by the MCPTT Server }
}

```

(6)

```

with { UE (MCPTT Client) participating in an ongoing On-demand Pre-arranged Group Call with Manual
Commencement Mode }
ensure that {
  when { UE (MCPTT Client) receives a SIP BYE message to end the Chat Group Call }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message }
}

```

6.1.2.12.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 10.1.2.2.1.1, 10.1.2.2.1.2, 6.2.6, TS 24.380, clauses 6.2.4.2.3, 6.2.4.3.3, 6.2.4.3.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 10.1.2.2.1.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity, identifying a chat MCPTT group, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

...

- 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

- 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 7) should include the "timer" option tag in the Supported header field;
- 8) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the refresher parameter is omitted. If included, the refresher parameter shall be set to "uac";
- 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

...

- 13) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

- a) the <session-type> element set to a value of "chat";
- b) the <mcptt-request-uri> element set to the group identity; and
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

- 14) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;
- 15) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 16) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4.

[TS 24.379, clause 10.1.2.2.1.2]

This subclause covers both on-demand session and pre-established sessions.

Upon receipt of a SIP re-INVITE request the MCPTT client:

- 1) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user the MCPTT ID of the originator of the MCPTT emergency group call and an indication that this is an MCPTT emergency group call;

- b) if the <mcpttinfo> element containing the <mcptt-Params> element contains an <alert-ind> element set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;
 - c) shall set the MCPTT emergency group state to "MEG 2: in-progress";
 - d) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril";and
 - e) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable";
- 2) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":
- a) should display to the MCPTT user the MCPTT ID of the originator of the MCPTT imminent peril group call and an indication that this is an MCPTT imminent peril group call; and
 - b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";
- 3) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "false":
- a) should display to the MCPTT user the MCPTT ID of the MCPTT user cancelling the MCPTT emergency group call;
 - b) if the <mcpttinfo> element containing the <mcptt-Params> element contains an <alert-ind> element set to "false":
 - i) should display to the MCPTT user an indication of the MCPTT emergency alert cancellation and the MCPTT ID of the MCPTT user cancelling the MCPTT emergency alert; and
 - ii) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body including an <originated-by> element:
 - A) should display to the MCPTT user the MCPTT ID contained in the <originated-by> element of the MCPTT user that originated the MCPTT emergency alert; and
 - B) if the MCPTT ID contained in the <originated-by> element is the MCPTT ID of the receiving MCPTT user, shall set the MCPTT emergency alert state to "MEA 1: no-alert";
 - c) shall set the MCPTT emergency group state to "MEG 1: no-emergency"; and
 - d) if the MCPTT emergency group call state of the group is set to "MEGC 3: emergency-call-granted", shall set the MCPTT emergency group call state of the group to "MEGC 1: emergency-gc-capable";
- 4) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "false":
- a) should display to the MCPTT user the MCPTT ID of the MCPTT user cancelling the MCPTT imminent peril group call and an indication that this is an MCPTT imminent peril group call;
 - b) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and
 - c) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable";
- 5) may check if a Resource-Priority header field is included in the incoming SIP re-INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 6) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 7) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;

- 8) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 9) if the SIP re-INVITE request was received within an on-demand session, shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
- 10) if the SIP re-INVITE request was received within a pre-established session, shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and

NOTE: The SIP re-INVITE request can be received within an on-demand session or a pre-established session associated with an MCPTT group session. If the SIP re-INVITE request is received within a pre-established session, the media-level section for the MCPTT speech media stream and the media-level section of the media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 11) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.380, clause 6.2.4.2.3]

When an MCPTT call is established, the terminating floor participant:

1. shall create an instance of a 'Floor participant state transition diagram for basic operation'; and
2. shall enter the 'U: has no permission' state.

NOTE: From a floor participant perspective the MCPTT call is established when the application and signalling plane sends the SIP 200 (OK) response.

[TS 24.380, clause 6.2.4.3.3]

Upon receiving the Floor Taken message, the floor participant:

1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '2' (Floor Taken); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide a floor taken notification to the user;
3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. should start the optional timer T103 (End of RTP media); and
5. shall remain in the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.3.2]

Upon receiving a Floor Idle message, the participant:

1. if the first bit in the subtype of the Floor Idle message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '5' (Floor Idle); and

- b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide floor idle notification to the user, if it has not already done so;
3. shall stop the optional timer T103 (End of RTP media), if it is running; and
4. shall remain in the 'U: has no permission' state.

6.1.2.12.3 Test description

6.1.2.12.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.12.3.2 Test procedure sequence

Table 6.1.2.12.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--------|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a chat group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a chat group call with implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 7A | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 7B | The UE (MCPTT client) performs procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1. | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to upgrade the call to an emergency chat group call? | - | - | 2 | P |
| 9-9A | Void | - | - | - | - |
| 10 | The SS (MCPTT server) sends a Floor Taken messages with request for acknowledgement. | <-- | Floor Taken | - | - |
| 11 | Check: Does the UE (MCPTT client) send a Floor Ack message? | --> | Floor Ack | 2 | P |
| 12 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to cancel the emergency condition? | - | - | 3 | P |
| 14-14A | Void | - | - | - | - |
| 15 | The SS (MCPTT server) sends a Floor Taken messages with request for acknowledgement. | <-- | Floor Taken | - | - |
| 16 | Check: Does the UE (MCPTT client) send a Floor Ack message? | --> | Floor Ack | 3 | P |
| 17 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 18 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to upgrade the call to an imminent peril chat group call? | - | - | 4 | P |
| 19-19A | Void | - | - | - | - |
| 20 | The SS (MCPTT server) sends a Floor Taken messages with request for acknowledgement. | <-- | Floor Taken | - | - |

| | | | | | |
|--------|---|-----|-------------|---|---|
| 21 | Check: Does the UE (MCPTT client) send a Floor Ack message? | --> | Floor Ack | 4 | P |
| 22 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 23 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to cancel the imminent peril condition? | - | - | 5 | P |
| 24-24A | Void | - | - | - | - |
| 25 | The SS (MCPTT server) sends a Floor Taken messages with request for acknowledgement. | <-- | Floor Taken | - | - |
| 26 | Check: Does the UE (MCPTT client) send a Floor Ack message? | --> | Floor Ack | 5 | P |
| 27 | The SS sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 28 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 6 | P |
| 29 | Void | -- | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.2.12.3.3 Specific message contents

Table 6.1.2.12.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.2.12.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-1B | | | |

Table 6.1.2.12.3.3-1A: SDP in SIP INVITE (Table 6.1.2.12.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED

Table 6.1.2.12.3.3-1B: MCPTT-Info in SIP INVITE (Table 6.1.2.12.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT-GROUP-CALL

Table 6.1.2.12.3.3-1C: SIP 200 (OK) from the SS (step 2, Table 6.1.2.12.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.12.3.3-1D | | | |

Table 6.1.2.12.3.3-1D: SDP in SIP 200 (OK) (Table 6.1.2.12.3.3-1C)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED

Table 6.1.2.12.3.3-2: Void**Table 6.1.2.12.3.3-4: SIP INVITE from the SS (step 8, Table 6.1.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.12.3.3-4A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-5 | | | |

Table 6.1.2.12.3.3-4A: SDP in SIP INVITE (Tables 6.1.2.12.3.3-4, 6.1.2.12.3.3-9, 6.1.2.12.3.3-13, 6.1.2.12.3.3-17)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER

Table 6.1.2.12.3.3-5: MCPTT-Info in SIP INVITE (Table 6.1.2.12.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL, EMERGENCY-CALL

Table 6.1.2.12.3.3-5A: SIP 200 (OK) from the UE (steps 8, 13, 18, 23, Table 6.1.2.12.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.1.2.12.3.3-5B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-5C | | | |

Table 6.1.2.12.3.3-5B: SDP in SIP 200 (OK) (Table 6.1.2.12.3.3-5A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER

Table 6.1.2.12.3.3-5C: MCPTT-Info in SIP 200 (OK) (Table 6.1.2.12.3.3-5A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP

Table 6.1.2.12.3.3-6: Floor Taken (step 10, Table 6.1.2.12.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition EMERGENCY-CALL, ACK

Table 6.1.2.12.3.3-7: Void**Table 6.1.2.12.3.3-8: Floor Idle (step 12, Table 6.1.2.12.3.2-1)**

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY-CALL |
|---|

Table 6.1.2.12.3.3-9: SIP INVITE from the SS (step 13, Table 6.1.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.12.3.3-4A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-10 | | | |

Table 6.1.2.12.3.3-10: MCPTT-Info in SIP INVITE (Table 6.1.2.12.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.1.2.12.3.3-10A: Void**Table 6.1.2.12.3.3-11: Floor Taken (steps 15, 25, Table 6.1.2.12.3.2-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition ACK |
|--|

Table 6.1.2.12.3.3-13: SIP INVITE from the SS (step 18, Table 6.1.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.12.3.3-4A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-14 | | | |

Table 6.1.2.12.3.3-14: MCPTT-Info in SIP INVITE (Table 6.1.2.12.3.3-13)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL, IMPERIL-CALL |
|--|

Table 6.1.2.12.3.3-14A: Void**Table 6.1.2.12.3.3-15: Floor Taken (step 20, Table 6.1.2.12.3.2-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition IMPERIL-CALL, ACK |
|--|

Table 6.1.2.12.3.3-16: Floor Idle (step 22, Table 6.1.2.12.3.2-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition IMPERIL-CALL |
|---|

Table 6.1.2.12.3.3-17: SIP INVITE from the SS (step 23, Table 6.1.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME part body | SDP Message as described in Table 6.1.2.12.3.3-4A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.1.2.12.3.3-18 | | | |

Table 6.1.2.12.3.3-18: MCPTT-Info in SIP INVITE (Table 6.1.2.12.3.3-17)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition CHAT-GROUP-CALL | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| imminentperil-ind | Encrypted <imminentperil-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.1.2.12.3.3-18A..19: Void**Table 6.1.2.12.3.3-20: SIP BYE from the SS (step 28, Table 6.1.2.12.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|

6.1.2.13 On-network / Chat Group Call / Join Chat Group Session / Active functional alias / Client Originated (CO)**6.1.2.13.1 Test Purpose (TP)**

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT On-demand Chat Group Call with implicit floor control using an active functional alias }
  then { UE (MCPTT Client) sends a SIP INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Chat Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) requests to terminate the ongoing MCPTT Chat Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

6.1.2.13.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 10.1.2.2.1.1, 6.2.4.1, TS 24.380, clauses 6.2.4.2.2, 6.2.4.4.2. Unless otherwise stated, these are Rel-15 requirements.

[TS 24.379, clause 10.1.2.2.1.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity, identifying a chat MCPTT group, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT chat group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.1;
 - 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in subclause 6.2.8.1.9;
 - 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
 - 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
 - 6) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - 7) should include the "timer" option tag in the Supported header field;
 - 8) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the refresher parameter is omitted. If included, the refresher parameter shall be set to "uac";
 - 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;
- NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.
- 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - 11) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall comply with the procedures in subclause 6.2.8.1.2;
 - 12) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
 - 13) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "chat";

- b) the <mcptt-request-uri> element set to the group identity;
- c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and
- d) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 2: The MCPTT ID of the originating MCPTT user is not included in the body, as this will be inserted into the body of the SIP INVITE request that is sent by the originating participating MCPTT function.

14) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [4] with the clarifications specified in subclause 6.2.1;

15) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and

16) shall send the SIP INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in subclause 6.2.8.1.4.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

6.1.2.13.3 Test description

6.1.2.13.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'UE initiated MCPTT functional alias status determination and subscription' as specified in TS 36.579-1 [2] clause 5.3A.9.
- The UE has performed procedure 'UE initiated MCPTT functional alias status change' as specified in TS 36.579-1 [2] clause 5.3A.10.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.13.3.2 Test procedure sequence

Table 6.1.2.13.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a chat group call using the active functional alias with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a chat group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.2.13.3.3 Specific message contents

Table 6.1.2.13.3.3-1: SIP INVITE from the UE (step 2, Table 6.1.2.13.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.2.13.3.3-2 | | | |

| | | | | |
|----------------|---|-------------------|--|--|
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.13.3.3-3 | | | |

Table 6.1.2.13.3.3-2: SDP in SIP INVITE (Table 6.1.2.13.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.2.13.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.2.13.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2-1, condition INVITE_REFERER, CHAT-GROUP-CALL | | | | |
|--|--|---------|---|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| functional-alias-URI | encrypted (NOTE 1) <functional-alias-URI> with mcpttURI set to px_MCPTT_ID_FA_A | | TS 24.379 [9] clause 10.1.2.2.2.1 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.2.13.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.2.13.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.2.13.3.3-5 | | | |

Table 6.1.2.13.3.3-5: SDP in SIP 200 (OK) (Table 6.1.2.13.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED |
|---|

Table 6.1.2.13.3.3-6: Void

6.1.2.14 On-network / Chat Group Call / Chat Group Call Using Pre-established Session / Active functional alias / Client Originated (CO)

6.1.2.14.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT On-demand Chat Group Call with implicit floor control using an active functional alias }
  then { UE (MCPTT Client) sends a SIP INVITE message and respects the floor control imposed by the MCPTT Server and provides floor granted notification to the MCPTT User }
}
```

(2)

```
with { UE (MCPTT Client) having established a Chat Group Call using an active functional alias within a pre-established session }
ensure that {
```

```

when { the UE (MCPTT Client) requests to leave the MCPTT session within a pre-established session
}
  then { UE (MCPTT Client) initiates leaving by sending a SIP REFER and leaves the call }

```

6.1.2.14.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in TS 24.379, clauses 10.1.2.2.2.1, 6.2.4.2, TS 24.380, clauses 6.2.4.2.2, 6.2.4.4.2. Unless otherwise stated, these are Rel-15 requirements.

[TS 24.379, clause 10.1.2.2.2.1]

Upon receiving a request from an MCPTT user to initiate or join an MCPTT group session using an MCPTT group identity identifying a chat MCPTT group within the pre-established session, the MCPTT client shall generate a SIP REFER request outside a dialog as specified in IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], and in accordance with the UE procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request URI of the SIP REFER request to the session identity of the pre-established session;
- 2) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL;
- 3) shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to the chat group identity, extended with the following URI header fields:

NOTE 1: Characters that are not formatted as ASCII characters are escaped in the following URI header fields;

- a) the Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- b) an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6]; and
- c) an hname "body" URI header field populated with:
 - i) an application/sdp MIME body containing an SDP offer, if the session parameters of the pre-established session require modification or if implicit floor control is required, according to the conditions specified in subclause 6.4;
 - ii) an application/vnd.3gpp.mcptt-info MIME body with:
 - A) the <session-type> element set to a value of "chat";
 - B) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client; and
 - C) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the SIP REFER request, the <functional-alias-URI> set to the URI of the used functional alias; and
 - iii) if:
 - A) implicit floor control is required; and
 - B) an application/vnd.3gpp.mcptt-info MIME body with the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true";

then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element;

NOTE 2: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in subclause 9A.2.1.3.

- 4) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT group call and the MCPTT emergency state is already set:
 - a) if this is an authorised request for an MCPTT emergency group call as determined by the procedures of subclause 6.2.8.8.1.8, shall comply with the procedures in subclause 6.2.8.1.1; and
 - b) if this is an unauthorised request for an MCPTT emergency group call as determined in step a) above, should indicate to the MCPTT user that they are not authorised to initiate an MCPTT emergency group call;
- 5) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.2;
- 6) if the MCPTT user has requested the origination of an MCPTT imminent peril group call:
 - a) if this is an authorised request for an MCPTT imminent peril group call as determined by the procedures of subclause 6.2.8.8.1.8, shall comply with the procedures in subclause 6.2.8.1.9;
 - b) if this is an unauthorised request for an MCPTT imminent peril group call as determined in step a) above, should indicate to the MCPTT user that they are not authorised to initiate an MCPTT imminent peril group call;
- 7) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in subclause 6.2.8.1.12;
- 8) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];
- 9) shall include the following according to IETF RFC 4488 [22]:
 - a) the option tag "norefersub" in the Supported header field; and
 - b) the value "false" in the Refer-Sub header field.
- 10) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session;
- 11) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP REFER request according to IETF RFC 3840 [16]; and
- 12) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

On receiving a final SIP 2xx response to the SIP REFER request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

On receiving a SIP 4xx response, SIP 5xx response or a SIP 6xx response to the SIP REFER request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in subclause 6.2.8.1.5 and shall skip the remaining steps.

On receiving a SIP re-INVITE request within the pre-established session targeted by the sent SIP REFER request, and if the sent SIP REFER request was a request for an MCPTT emergency group call or an MCPTT imminent peril group call, the MCPTT client:

- 1) shall perform the actions specified in subclause 6.2.8.1.16;

- 2) shall check if a Resource-Priority header field is included in the incoming SIP re-INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 3) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 4) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and
- 5) shall send the SIP 200 (OK) response towards the participating MCPTT function according to rules and procedures of 3GPP TS 24.229 [4].

On call release by interaction with the media plane as specified in subclause 9.2.2 of 3GPP TS 24.380 [5] if the sent SIP REFER request was a request for an MCPTT emergency group call or an MCPTT imminent peril group call, the MCPTT client shall perform the procedures specified in subclause 6.2.8.1.17.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in subclause 6.2.8.1.13.

[TS 24.379, clause 6.2.4.2]

Upon receiving a request from an MCPTT user to leave an MCPTT session within a pre-established session, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to leave;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP REFER request, the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';
2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.2

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

6.1.2.14.3 Test description

6.1.2.14.3.1 Pre-test conditions

System Simulator:

SS (MCPTT server)

For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- The UE has performed procedure 'UE initiated MCPTT functional alias status determination and subscription' as specified in TS 36.579-1 [2] clause 5.3A.9.
- The UE has performed procedure 'UE initiated MCPTT functional alias status change' as specified in TS 36.579-1 [2] clause 5.3A.10.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.2.14.3.2 Test procedure sequence

Table 6.1.2.14.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a chat group call using the pre-established and the active functional alias, with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1 to establish a chat group call with implicit floor control using an active functional alias? | - | - | 1 | P |
| 3 | The SS (MCPTT server) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 4 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 5 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.4.3-1 | - | - | 2 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.2.14.3.3 Specific message contents

Table 6.1.2.14.3.3-1: SIP REFER (step 2, Table 6.1.2.14.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition CHAT-GROUP-CALL | | | | |
|---|--------------|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-list | | |

| | | | | |
|----------------|---|--|--|--|
| MIME-part-body | Resource-lists as described in Table 6.1.2.14.3.3-2 | | | |
|----------------|---|--|--|--|

Table 6.1.2.14.3.3-2: Resource-lists in SIP REFER (Table 6.1.2.14.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRE-ESTABLISH, CHAT-GROUP-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.1.2.14.3.3-3

Table 6.1.2.14.3.3-3: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.1.2.14.3.3-2)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition CHAT-GROUP-CALL | | | | |
|---|--|--------------------|-----------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | TS 24.379 [9] clause 10.1.2.2.2.1 | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.1.2.14.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.2.14.3.3-5 | | | |

Table 6.1.2.14.3.3-4: SDP in SIP INVITE (Table 6.1.2.14.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED

Table 6.1.2.14.3.3-5: MCPTT-Info in SIP INVITE (Table 6.1.2.14.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, CHAT-GROUP-CALL | | | | |
|--|---|---------|-----------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| functional-alias-URI | encrypted (NOTE 1) <functional-alias-URI> with mcpttURI set to px_MCPTT_ID_FA_A | | TS 24.379 [9] clause 10.1.2.2.2.1 | |

Table 6.1.2.14.3.3-6: SIP 200 (OK) from the SS(step 2, Table 6.1.2.14.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|--------------------------------------|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | As described in Table 6.1.2.14.3.3-7 | | | |

Table 6.1.2.14.3.3-7: SDP in SIP 200 (OK) (Table 6.1.2.14.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, IMPLICIT_GRANT_REQUESTED

Table 6.1.2.14.3.3-8: Void**Table 6.1.2.14.3.3-9: Connect (step 2, Table 6.1.2.14.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition CHAT-GROUP-CALL, ACK

6.1.3 Conference Event Package

6.1.3.1 On-network / Conference Event Package / Subscription to Conference Event Package / Termination of subscription

6.1.3.1.1 Test Purpose (TP)

1)
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
 when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call with Automatic Commencement Mode and implicit floor control }
 then { UE (MCPTT Client) requests On-demand Automatic Commencement Mode Pre-arranged Group Call establishment with implicit floor control by sending a SIP INVITE message, **and**, after indication from the MCPTT Server that the call was established and receiving a Floor Granted message, notifies the user }
 }

(2)

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
 when { MCPTT User requests to subscribe to the conference event package for the ongoing group call }
 then { UE (MCPTT Client) sends a SIP SUBSCRIBE message with the Expires header field set to 4294967295 **and** responds to a SIP NOTIFY message with a SIP 200 (OK) message }
 }

(3)

with { UE (MCPTT Client) having subscribed to the conference event package for the ongoing group call }
ensure that {
 when { MCPTT User requests to terminate the subscription }
 then { UE (MCPTT Client) sends a SIP SUBSCRIBE message with the Expires header field set to 0 }
 }

(4)

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
 when { the MCPTT User) requests to end the On-demand Pre-arranged Group Call with Automatic Commencement Mode }
 then { UE (MCPTT Client) sends a SIP BYE message and leaves the call }
 }

6.1.3.1.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 10.1.1.2.1.1, 10.1.3.2, 10.1.1.2.3.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in clause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in clause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in clause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in clause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in clause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in clause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in clause 10.1.3.1.

[TS 24.379, clause 10.1.3.2]

A MCPTT client may subscribe to the conference event package when a group call is ongoing and the ongoing group call is not initiated as a broadcast group call by sending a SIP SUBSCRIBE request to obtain information of the status of a group session.

When subscribing to the conference event package, the MCPTT client:

- 1) shall generate a SIP SUBSCRIBE request and use a new SIP-dialog according to IETF RFC 6665 [26], IETF RFC 4575 [30] and 3GPP TS 24.229 [4];
- 2) shall set the Request-URI of the SIP SUBSCRIBE request to the MCPTT session identity of the group session;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) shall include an Accept-Contact header with the media feature tag g.3gpp.icsi-ref with the value "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 6) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero;

- 7) shall include an Accept header field containing the application/conference-info+xml" MIME type;
- 8) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-request-uri> element set to the MCPTT group ID of the group session; and
- 9) shall send the SIP SUBSCRIBE request using a new SIP dialog according to 3GPP TS 24.229 [4].

The responses to the SIP SUBSCRIBE request shall be handled according to IETF RFC 6665 [26], IETF RFC 4575 [30] and TS 24.229 [4].

Upon receiving a SIP NOTIFY requests to the previously sent SIP SUBSCRIBE request the MCPTT client:

- 1) shall handle the request according to IETF RFC 6665 [26] and IETF RFC 4575 [30]; and
- 2) may display the current state information to the MCPTT client based on the information in the SIP NOTIFY request body.

When needed the MCPTT client shall terminate the subscription and indicate it terminated according to IETF RFC 6665 [26].

NOTE 2: The contents of the received SIP NOTIFY request body is specified in clause 6.3.3.4.

[TS 24.379, clause 10.1.1.2.3.1]

When an MCPTT client wants to leave the MCPTT session that has been established using on-demand session, the MCPTT client shall follow the procedures as specified in clause 6.2.4.1.

6.1.3.1.3 Test description

6.1.3.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.3.1.3.2 Test procedure sequence

Table 6.1.3.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) subscribe to the conference event package for the ongoing group call to receive the current status and later notifications. (NOTE 1) | - | - | - | - |
| 5-8 | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to subscribe to the conference event package for the ongoing group call to receive the current status and later notifications? | - | - | 2 | P |
| 9 | The SS (MCPTT server) sends a SIP NOTIFY message with conference event package notification. | <-- | SIP NOTIFY | - | - |
| 10 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK) message? | --> | SIP 200 (OK) | 2 | P |
| 11 | Make the UE (MCPTT client) de-subscribe from the conference event package. (NOTE 1) | - | - | - | - |
| 12 | Check: Does the UE (MCPTT client) send a SIP SUBSCRIBE message with the Expires header field set to 0? | --> | SIP SUBSCRIBE | 3 | P |
| 13 | The SS (MCPTT server) responds with a SIP 200 (OK) message. | <-- | SIP 200 (OK) | - | - |
| 14 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 15 | Check: Does the UE (MCPTT Client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 4 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.3.1.3.3 Specific message contents

Table 6.1.3.1.3.3-1: SIP INVITE from the UE(step 2, Table 6.1.3.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.3.1.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.3.1.3.3-3 | | | |

Table 6.1.3.1.3.3-2: SDP in SIP INVITE (Table 6.1.3.1.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.1.3.1.3.3-3: MCPTT-Info in SIP INVITE (Table 6.1.3.1.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFER |
|---|

Table 6.1.3.1.3.3-4: SIP 200 (OK) from the SS (step 2, Table 6.1.3.1.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.3.1.3.3-5 | | | |

Table 6.1.3.1.3.3-5: SDP in SIP 200 (OK) (Table 6.1.3.1.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED |
|---|

Table 6.1.3.1.3.3-6: SIP SUBSCRIBE from the UE (step 5, Table 6.1.3.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1 | | | | |
|--|---|-------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | MCPTT session identity of the group session as provided by the SS in the Contact header field of the SIP 200 OK at call establishment | | TS 24.379 [9] clause 10.1.3.2 | |
| Accept-Contact | | | | |
| ac-value | | | | |
| feature-param | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | TS 24.379 [9] clause 10.1.3.2 | |
| req-param | "require" | | TS 24.379 [9] clause 10.1.3.2 | |
| explicit-param | "explicit" | | TS 24.379 [9] clause 10.1.3.2 | |
| Expires | | | | |
| value | "4294967295" | | TS 24.379 [9] clause 10.1.3.2 | |
| Accept | | | | |
| media-range | "application/conference-info+xml" | | TS 24.379 [9] clause 10.1.3.2 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.3.1.3.3-7 | | | |

Table 6.1.3.1.3.3-7: MCPTT-Info in SIP SUBSCRIBE (Table 6.1.3.1.3.3-6)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|--|---|----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_A_ID | The URI of the group | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A | | | | |

Table 6.1.3.1.3.3-8: SIP 200 (OK) from the SS (Steps 6, 13, Table 6.1.3.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition SUBSCRIBE-RSP | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | | | | |
| addr-spec | | | | |
| user-info and host | "sip:" & "conference-event-package@cf." & px_MCX_DomainName_Organization_A | | | |
| port | not present | | | |

Table 6.1.3.1.3.3-9: SIP NOTIFY from the SS (step 7, Table 6.1.3.1.3.2-1; Step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1 | | | | |
|---|--|------------------------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| user-info and host | tsc_MCPTT_PublicServiceId_A | | TS 24.379 [9] clause 6.3.3.4 | |
| Event | | | | |
| event-type | "conference" | | TS 24.379 [9] clause 6.3.3.4 | |
| Expires | | | | |
| value | "3600" | 3600 seconds | TS 24.379 [9] clause 6.3.3.4 | |
| Subscription-State | | | | |
| expires | "3600" | | | |
| P-Preferred-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | TS 24.379 [9] clause 6.3.3.4 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.3.1.3.3-10 | | | |
| MIME body part | | Conference-Info | | |
| MIME-part-body | Conference-Info as described in Table 6.1.3.1.3.3-11 | | | |

Table 6.1.3.1.3.3-10: MCPTT-Info in SIP NOTIFY (Table 6.1.3.1.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | not present | | | |
| mcptt-calling-group-id | Encrypted (NOTE 1) <mcptt-calling-group-id> with mcpttURI set to px_MCPTT_Group_A_ID | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.2-1A | | | | |

Table 6.1.3.1.3.3-11: Conference-Info in SIP NOTIFY (Table 6.1.3.1.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.15-1 | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.1.3.1.3.3-12: SIP NOTIFY from the SS (step 9, Table 6.1.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1 | | | | |
|---|--|------------------------|------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| user-info and host | tsc_MCPTT_PublicServiceId_A | | TS 24.379 [9] clause 6.3.3.4 | |
| Event | | | | |
| event-type | "conference" | | TS 24.379 [9] clause 6.3.3.4 | |
| Expires | | | | |
| value | "3600" | 3600 seconds | TS 24.379 [9] clause 6.3.3.4 | |
| Subscription-State | | | | |
| expires | "3600" | | | |
| P-Preferred-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | TS 24.379 [9] clause 6.3.3.4 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.3.1.3.3-10 | | | |
| MIME body part | | Conference-Info | | |
| MIME-part-body | Conference-Info as described in Table 6.1.3.1.3.3-13 | | | |

Table 6.1.3.1.3.3-13: Conference-Info in SIP NOTIFY (Table 6.1.3.1.3.3-12)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.15-1 | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| conference-info | | | | |
| users | | | | |
| user [3] | | | | |
| endpoint | | | | |
| status | disconnected | | | |

Table 6.1.3.1.3.3-14: SIP SUBSCRIBE from the UE (step 12, Table 6.1.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition re SUBSCRIBE | | | | |
|--|---|-------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | | | | |
| feature-param | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | TS 24.379 [9] clause 10.1.3.2 | |
| req-param | "require" | | TS 24.379 [9] clause 10.1.3.2 | |
| explicit-param | "explicit" | | TS 24.379 [9] clause 10.1.3.2 | |
| Expires | | | | |
| value | "0" | | TS 24.379 [9] clause 10.1.3.2 | |
| Accept | | | | |
| media-range | "application/conference-info+xml" | | TS 24.379 [9] clause 10.1.3.2 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.3.1.3.3-7 | | | |

6.1.4 Remote Change of Selected Group

6.1.4.1 On-network / Remote Change of Selected Group / Selected Group Change of Targeted User / Client Originated (CO)

6.1.4.1.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to send a group selection change request to change the selected
group of a targeted MCPTT user to a specific MCPTT group }
  then { UE (MCPTT Client) sends a SIP MESSAGE message and responds to a SIP MESSAGE message with
a SIP 200 (OK) message }
}

```

6.1.4.1.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 10.1.4.2.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 10.1.4.2.1]

Upon receiving a request from the MCPTT user to send a group selection change request to change the selected group of a targeted MCPTT user to a specific MCPTT group, the MCPTT client:

1) if:

- a) the <RemoteGroupSelectionURIList> element does not exist in the MCPTT user profile document with one or more <entry> elements (see the MCPTT user profile document in 3GPP TS 24.484 [50]); or
- b) the <RemoteGroupSelectionURIList> element exists in the MCPTT user profile document and the MCPTT ID of the targeted MCPTT user does not match with one of the <entry> elements of the

<RemoteGroupSelectionURIList> element of the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]);

then:

- a) should indicate to the requesting MCPTT user that they are not authorised to change the selected MCPTT group of the targeted MCPTT user; and
 - b) shall skip the rest of the steps of the present clause;
- 2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
- a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4]; and
 - d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-request-uri> set to the MCPTT group identity to be selected by the targeted MCPTT user; and
 - ii) the <anyExt> element containing the <request-type> element set to a value of "group-selection-change-request"; and
 - e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the targeted MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
- 3) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user; and
- 4) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, should indicate to the MCPTT user the failure of the sent group selection change request and not continue with the rest of the steps.

Upon receiving a "SIP MESSAGE request for group selection change response for terminating client", the MCPTT client:

- 1) shall determine the success or failure of the sent group selection change request from the value of the <selected-group-change-outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and
- 2) should indicate to the MCPTT user the success or failure of the sent group selection change request.

6.1.4.1.3 Test description

6.1.4.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.4.1.3.2 Test procedure sequence

Table 6.1.4.1.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request to change the selected group of user C to group B. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 to change the selected group of a targeted user to a specific group? | - | - | 1 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.4.1.3.3 Specific message contents

Table 6.1.4.1.3.3-1: SIP MESSAGE from the UE (Step 2, Table 6.1.4.1.3.2-1; Step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|-------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | TS 24.379 [9] clause F.1 | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.1.3.3-2 | | | |
| Resource-lists | | | | |
| MIME-part-body | Resource-lists as described in Table 6.1.4.1.3.3-3 | | | |

Table 6.1.4.1.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.1.4.1.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--|---|---------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_B_I D | The MCPTT group identity to be selected by the targeted MCPTT user | TS 24.379 [9] clause 10.1.4.2.1 | |
| anyExt | | | | |
| request-type | "group-selection- change-request" | | TS 24.379 [9] clause 10.1.4.2.1 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.4.1.3.3-3: Resource lists in SIP MESSAGE (Table 6.1.4.1.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1 | | | | |
|---|--------------------|----------------------------|---------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| resource-lists | | | | |
| list | | | | |
| entry[1] | | | | |
| uri attribute | px_MCPTT_ID_User_C | The targeted MCPTT user | TS 24.379 [9] clause 10.1.4.2.1 | |

**Table 6.1.4.1.3.3-4: SIP MESSAGE from the SS (Step 2, Table 6.1.4.1.3.2-1;
Step 4, TS 36.579-1 [2] Table 5.3.30.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|--|-------------------|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Identity | | | | |
| name-addr | px_MCX_SIP_PublicUs erId_C | | TS 24.379 [9] clause 10.1.4.4 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.1.3.3-5 | | | |

Table 6.1.4.1.3.3-5: MCPTT-Info in SIP MESSAGE (Table 6.1.4.1.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|---|---------|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | TS 24.379 [9] clause 10.1.4.4 | |
| mcptt-calling-user-id | Encrypted (NOTE 1) <mcptt-calling-user-id> with mcpttURI set to px_MCPTT_ID_User_C | | | |
| mcptt-calling-group-id | Encrypted (NOTE 1) <mcptt-calling-group-id> with mcpttURI set to px_MCPTT_Group_B_I D | | | |
| anyExt | | | | |
| response-type | "group-selection-change-response" | | TS 24.379 [9] clause 10.1.4.4 | |
| selected-group-change-outcome | "success" | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

6.1.4.2 On-network / Remote Change of Selected Group / Selected Group Change of Targeted User / Client Terminated (CT)

6.1.4.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { MCPTT User requests group to discover which groups the MCPTT User is affiliated to and to
  subscribe to affiliation status changes for the MCPTT User }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message and responds to a SIP NOTIFY message with
  a SIP 200 (OK) message }
}
```

(2)

```
with { UE (MCPTT Client) having subscribed to affiliation status changes }
ensure that {
  when { MCPTT User requests to de-affiliate from a group }
  then { UE (MCPTT Client) sends a SIP PUBLISH message and responds to a SIP NOTIFY message with a
  SIP 200 (OK) message }
}
```

(3)

```
with { UE (MCPTT Client) having subscribed to affiliation status changes }
ensure that {
  when { UE (MCPTT Client) receives to send a group selection change request to change the selected
  group of a targeted MCPTT user to a specific MCPTT group via a SIP MESSAGE message }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and initiates affiliation to the
  group by sending a SIP PUBLISH message and responds to a SIP NOTIFY message with a SIP 200 (OK)
  message }
}
```

(4)

```
with { UE (MCPTT Client) having received a SIP MESSAGE message indicating a group selection change
request }
```

```

ensure that {
  when { UE (MCPTT Client) determines that the group selection change is successful }
  then { UE (MCPTT Client) sends the group selection determination via a SIP MESSAGE message }
}

```

6.1.4.2.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clause 9.2.1.2, 9.2.1.3, 10.1.4.2.2. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 9.2.1.2]

In order:

- to indicate that an MCPTT user is interested in one or more MCPTT group(s) at an MCPTT client;
- to indicate that the MCPTT user is no longer interested in one or more MCPTT group(s) at the MCPTT client;
- to refresh indication of an MCPTT user interest in one or more MCPTT group(s) at an MCPTT client due to near expiration of the expiration time of an MCPTT group with the affiliation status set to the "affiliated" state received in a SIP NOTIFY request in clause 9.2.1.3;
- to send an affiliation status change request in mandatory mode to another MCPTT user; or
- any combination of the above;

the MCPTT client shall generate a SIP PUBLISH request according to 3GPP TS 24.229 [4], IETF RFC 3903 [37], and IETF RFC 3856 [51].

In the SIP PUBLISH request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the targeted MCPTT user is interested in at least one MCPTT group at the targeted MCPTT client, shall set the Expires header field according to IETF RFC 3903 [37], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the targeted MCPTT user is no longer interested in any MCPTT group at the targeted MCPTT client, shall set the Expires header field according to IETF RFC 3903 [37], to zero; and
- 6) shall include an application/pidf+xml MIME body indicating per-user affiliation information according to clause 9.3.1. In the MIME body, the MCPTT client:
 - a) shall include all MCPTT groups where the targeted MCPTT user indicates its interest at the targeted MCPTT client;
 - b) shall include the MCPTT client ID of the targeted MCPTT client;
 - c) shall not include the "status" attribute and the "expires" attribute in the <affiliation> element; and
 - d) shall set the <p-id> child element of the <presence> root element to a globally unique value.

The MCPTT client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [4].

[TS 24.379, clause 9.2.1.3]

NOTE 1: The MCPTT UE also uses this procedure to determine which MCPTT groups the MCPTT user successfully affiliated to.

In order to discover MCPTT groups:

- 1) which the MCPTT user at an MCPTT client is affiliated to; or
- 2) which another MCPTT user is affiliated to;

the MCPTT client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the targeted MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 6) shall include an Accept header field containing the application/pdf+xml MIME type; and
- 7) if requesting MCPTT groups where the MCPTT user is affiliated to at the MCPTT client, shall include an application/simple-filter+xml MIME body indicating per-client restrictions of presence event package notification information according to clause 9.3.2, indicating the MCPTT client ID of the MCPTT client.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 2) if the MCPTT client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 3) shall include an Accept header field containing the application/pdf+xml MIME type.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26], if SIP NOTIFY request contains an application/pdf+xml MIME body indicating per-user affiliation information constructed according to clause 9.3.1, then the MCPTT client shall determine affiliation status of the MCPTT user for each MCPTT group at the MCPTT client(s) in the MIME body. If the <p-id> child element of the <presence> root element of the application/pdf+xml MIME body of the SIP NOTIFY request is included, the <p-id> element value indicates the SIP PUBLISH request which triggered sending of the SIP NOTIFY request.

[TS 24.379, clause 10.1.4.2.2]

Upon receiving a "SIP MESSAGE request for group selection change request for terminating client", the MCPTT client:

- 1) if the received SIP MESSAGE request contains an application/vnd.3gpp.mcptt-info+xml MIME body containing an <affiliation-required> element set to a value of "true":
 - a) shall invoke the procedures of clause 9.2.1.2 to affiliate to the MCPTT group identified by the contents of the <mcptt-calling-group-id> included in the application/vnd.3gpp.mcptt-info+xml MIME body;
 - b) if the MCPTT client has not already invoked the procedures of clause 9.2.1.3, shall invoke the procedures of clause 9.2.1.3; and
 - c) upon receiving a SIP NOTIFY request including a <p-id> element set to a value matching the <p-id> value included in the SIP PUBLISH request sent in step 1) a) above as specified in clause 9.2.1.3, shall determine if the affiliation procedure to the MCPTT group identified by the contents of the <mcptt-calling-group-id> in the received SIP MESSAGE request was successful;
- 2) if the received SIP MESSAGE request contained an application/vnd.3gpp.mcptt-info+xml MIME body containing an <affiliation-required> element set to a value of "true" and the affiliation was successful as determined in step 1) c) above, or if the <affiliation-required> element was not present in the received SIP MESSAGE request:
 - a) shall change the MCPTT client's selected group to the MCPTT group identified by the contents of the <mcptt-calling-group-id> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and
 - b) shall determine the success or failure of the change of selected group action;
- 3) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
 - a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - d) shall include in an application/resource-lists+xml MIME body, the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
 - e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <response-type> element set to a value of "group-selection-change-response"; and
 - ii) the <anyExt> element containing:
 - A) the <response-type> element set to a value of "group-selection-change-response";
 - B) if the MCPTT client was able to successfully change the selected group as determined in step 2) b) above, then a <selected-group-change-outcome> element set to a value of "success"; and
 - C) if the MCPTT client:
 - I) was required to affiliate to the MCPTT group identified by the contents of the <mcptt-calling-group-id> in the received SIP MESSAGE request and the affiliation failed as determined in step 1) c); or
 - II) failed to change the selected group as determined in step 2) b);then a <selected-group-change-outcome> element set to a value of "fail";
 - 4) should indicate to the MCPTT user the success or failure of the requested change of selected group action;

- 5) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user; and
- 6) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

6.1.4.2.3 Test description

6.1.4.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.4.2.3.2 Test procedure sequence

Table 6.1.4.2.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----------|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) subscribe to affiliation status determination and later notifications for user A. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] table 5.3.29.3-1 to subscribe to its own affiliation status changes? | - | - | 1 | P |
| 3 | Make the UE (MCPTT client) request de-affiliation of user A from group A. (NOTE 1) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX Group Affiliation Status Change' as described in TS 36.579-1 [2] table 5.3.34.3-1 to de-affiliate with group A? | - | - | 2 | P |
| 5-7 | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] table 5.3.33.3-1 are performed asking the UE (MCPTT client) to change the selected group to group A. | - | - | - | - |
| 8-12 A | Check: Does the UE (MCPTT client) correctly perform steps 2-7 of procedure 'MCX Group Affiliation Status Change' as described in TS 36.579-1 [2] table 5.3.34.3-1 to affiliate with group A? | - | - | 3 | P |
| 13-15 | Check: Does the UE (MCPTT client) correctly perform steps 2-4 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] table 5.3.32.3-1 indicating successful change of the selected group? | - | - | 4 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.4.2.3.3 Specific message contents

Table 6.1.4.2.3.3-1: SIP SUBSCRIBE from the UE (step 2, Table 6.1.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1 | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.2.3.3-2 | | | |

Table 6.1.4.2.3.3-2: MCPTT-Info in SIP SUBSCRIBE (Table 6.1.4.2.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.4.2.3.3-3: SIP NOTIFY from the SS (step 2, Table 6.1.4.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-4 | | | |

Table 6.1.4.2.3.3-4: PIDF in SIP NOTIFY (Table 6.1.4.2.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | affiliated | | | |

Table 6.1.4.2.3.3-5: SIP PUBLISH from the UE (step 4, Table 6.1.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | 0 | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.2.3.3-6 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-7 | | | |

Table 6.1.4.2.3.3-6: MCPTT-Info in SIP PUBLISH (Table 6.1.4.2.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.4.2.3.3-7: PIDF in SIP PUBLISH (Table 6.1.4.2.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|-------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | not present | | | |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 6.1.4.2.3.3-8: SIP NOTIFY from the SS (step 4, Table 6.1.4.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-9 | | | |

Table 6.1.4.2.3.3-9: PIDF in SIP NOTIFY (Table 6.1.4.2.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | deaffiliating | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH | | | |

Table 6.1.4.2.3.3-10: SIP NOTIFY from the SS (step 4, Table 6.1.4.2.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-11 | | | |

Table 6.1.4.2.3.3-11: PIDF in SIP NOTIFY (Table 6.1.4.2.3.3-10)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple id | | | | |
| status | not present | | | |
| ..p-id | same value as received in the corresponding SIP PUBLISH | | | |

Table 6.1.4.2.3.3-12: SIP MESSAGE from the SS (Step 6, Table 6.1.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | TS 24.379 [9] clause F.1 | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.2.3.3-13 | | | |

Table 6.1.4.2.3.3-13: MCPTT-Info in SIP MESSAGE (Table 6.1.4.2.3.3-12)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|--|---------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | TS 24.379 [9] clause 10.1.4.4 | |
| mcptt-calling-group-id | Encrypted (NOTE 1) <mcptt-calling-group-id> with mcpttURI set to px_MCPTT_Group_A_ID | | | |
| anyExt | | | | |
| request-type | "group-selection-change-request" | | TS 24.379 [9] clause 10.1.4.4 | |
| affiliation-required | "true" | | TS 24.379 [9] clause 10.1.4.4 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.2-1A. | | | | |

Table 6.1.4.2.3.3-14: SIP PUBLISH from the UE (step 8, Table 6.1.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition PRESENCE-EVENT | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.2.3.3-15 | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-16 | | | |

Table 6.1.4.2.3.3-15: MCPTT-Info in SIP PUBLISH (Table 6.1.4.2.3.3-14)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.4.2.3.3-16: PIDF in SIP PUBLISH (Table 6.1.4.2.3.3-14)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.1-1, condition AFFILIATION | | | | |
|--|-------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| ..p-id | any allowed value | p-id shall be present acc. to TS 24.379 [9] clause 9.2.2.2.5 and clause 9.2.2.3.5 | | |

Table 6.1.4.2.3.3-17: SIP NOTIFY from the SS (step 10, Table 6.1.4.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|---|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-18 | | | |

Table 6.1.4.2.3.3-18: PIDF in SIP NOTIFY (Table 6.1.4.2.3.3-17)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | affiliating | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH | | | |

Table 6.1.4.2.3.3-18A: SIP NOTIFY from the SS (step 12, Table 6.1.4.2.3.2-1; step 6, TS 36.579-1 [2] Table 5.3.34.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.4.2.3.3-18B | | | |

Table 6.1.4.2.3.3-18B: PIDF in SIP NOTIFY (Table 6.1.4.2.3.3-18A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence | | | | |
| tuple | | | | |
| status | | | | |
| affiliation | | | | |
| status | affiliated | | | |
| ..p-id | same value as received in corresponding SIP PUBLISH | | | |

Table 6.1.4.2.3.3-19: SIP MESSAGE from the UE (Step 13, Table 6.1.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.4.2.3.3-20 | | | |

Table 6.1.4.2.3.3-20: MCPTT-Info in SIP MESSAGE (Table 6.1.4.2.3.3-19)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|--|---------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_A_ID | The MCPTT group identity to be selected by the targeted MCPTT user | TS 24.379 [9] clause 10.1.4.2.2 | |
| anyExt | | | | |
| response-type | "group-selection-change-response" | | TS 24.379 [9] clause 10.1.4.2.2 | |
| selected-group-change-outcome | "success" | | TS 24.379 [9] clause 10.1.4.2.2 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

6.1.5 Remotely initiated group call

6.1.5.1 On-network / Remotely initiated group call / Client Originated (CO)

6.1.5.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests to send a remotely initiated group call request to a remote MCPTT user for a targeted MCPTT group, Group A, with affiliation status of the remote MCPTT user to the targeted MCPTT group needing to be verified, and indicate that the remote MCPTT user not be notified of the remotely initiated group call request }
  then { UE (MCPTT Client) sends a SIP SUBSCRIBE message to subscribe to affiliation status changes of a target user and responds to a SIP NOTIFY message with a SIP 200 (OK) message }
}
```

(2)

```
with { MCPTT User having requested to send a remotely initiated group call request to a remote MCPTT user }
ensure that {
  when { UE (MCPTT Client) determines that the targeted MCPTT user is affiliated to the targeted group }
  then { UE (MCPTT Client) sends a SIP MESSAGE message to initiate a remotely initiated group call and responds to a SIP MESSAGE status response with a SIP 200 (OK) message }
}
```

6.1.5.1.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 10.1.5.2.1, 9.2.1.3. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 10.1.5.2.1]

Upon receiving a request from the requesting MCPTT user to send a remotely initiated group call request to the remote MCPTT user for a targeted MCPTT group, the MCPTT client:

1) if:

- a) the <allow-request-remote-init-group-call> element of the <ruleset> element is not present in the requesting MCPTT user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false":

then:

- a) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the remote MCPTT user; and
- b) shall skip the rest of the steps of the present clause;

2) if:

- a) the requesting MCPTT user has indicated that the affiliation status of the remote MCPTT user to the targeted MCPTT group needs to be verified; and
- b) the <allow-request-affiliated-groups> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "false";
 - i) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to request the affiliation status of other MCPTT users; and
 - ii) shall skip the rest of the steps of the present clause; and
- c) the <allow-request-affiliated-groups> element of the of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true";

then:

- a) shall invoke the procedures of clause 9.2.1.3 to determine if the remote MCPTT user is affiliated to the targeted MCPTT group; and

b) if the remote MCPTT user is determined to not be affiliated to the targeted MCPTT group:

- i) if the <allow-request-to-affiliate-other-users> of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "false":

A) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the targeted MCPTT user; and

B) shall skip the rest of the steps of the present clause; and

- ii) if the <allow-request-to-affiliate-other-users> of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true";

A) shall invoke the procedures of clause 9.2.1.2 to affiliate the remote MCPTT user to the targeted MCPTT group by the requesting MCPTT user;

B) if the procedures of clause 9.2.1.2 were not successful:

I) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the remote MCPTT user; and

II) shall skip the rest of the steps of the present clause; and

- C) upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]:
- I) if the SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-user affiliation information constructed according to clause 9.3.1, shall determine if the per user affiliation information indicates that the remote MCPTT user is affiliated;
 - II) if per user affiliation information in the received SIP NOTIFY request indicates that the remote MCPTT user is not affiliated to the targeted MCPTT group, should indicate to the requesting MCPTT user that the remote MCPTT user cannot be affiliated to the targeted MCPTT group; and
 - III) if it is determined in the previous step that the remote MCPTT user cannot be affiliated to the targeted MCPTT group, shall skip the rest of the steps of the present clause;
- 3) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
- a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-request-uri> set to the MCPTT group identity of the targeted MCPTT group for the remotely initiated call; and
 - ii) an <anyExt> element containing:
 - A) the <request-type> element set to a value of "remotely-initiated-private-call-request";
 - B) the <notify-remote-user> element set to a value of "true" if the requesting MCPTT user has indicated that the remote MCPTT user be notified of the remotely initiated group call request; and
 - C) the <notify-remote-user> element set to a value of "false" if the requesting MCPTT user has indicated that the remote MCPTT user not be notified of the remotely initiated group call request;
 - e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the remote MCPTT user, according to rules and procedures of IETF RFC 5366 [20]; and
 - f) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the remote MCPTT user; and
- 4) shall send the SIP MESSAGE request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, should indicate to the requesting MCPTT user the failure of the sent remotely initiated group call request and not continue with the rest of the steps.

Upon receiving a "SIP MESSAGE request for remotely initiated group call response for terminating client", the MCPTT client:

- 1) shall determine the success or failure of the sent remotely initiated group call request from the value of the <remotely-initiated-call -outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and
- 2) should indicate to the requesting MCPTT user the success or failure of the sent remotely initiated group call request.

[TS 24.379, clause 9.2.1.3]

NOTE 1: The MCPTT UE also uses this procedure to determine which MCPTT groups the MCPTT user successfully affiliated to.

In order to discover MCPTT groups:

- 1) which the MCPTT user at an MCPTT client is affiliated to; or
- 2) which another MCPTT user is affiliated to;

the MCPTT client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26].

In the SIP SUBSCRIBE request, the MCPTT client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCPTT function serving the MCPTT user;
- 2) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the MCPTT client shall include the <mcptt-request-uri> element set to the MCPTT ID of the targeted MCPTT user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9];
- 4) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 5) if the MCPTT client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 6) shall include an Accept header field containing the application/pdf+xml MIME type; and
- 7) if requesting MCPTT groups where the MCPTT user is affiliated to at the MCPTT client, shall include an application/simple-filter+xml MIME body indicating per-client restrictions of presence event package notification information according to clause 9.3.2, indicating the MCPTT client ID of the MCPTT client.

In order to re-subscribe or de-subscribe, the MCPTT client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]. In the SIP SUBSCRIBE request, the MCPTT client:

- 1) if the MCPTT client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [26], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [24].

- 2) if the MCPTT client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [26], to zero; and
- 3) shall include an Accept header field containing the application/pdf+xml MIME type.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26], if SIP NOTIFY request contains an application/pdf+xml MIME body indicating per-user affiliation information constructed according to clause 9.3.1, then the MCPTT client shall determine affiliation status of the MCPTT user for each MCPTT group at the MCPTT client(s) in the MIME body. If the <p-id> child element of the <presence> root element of the application/pdf+xml MIME body of the SIP NOTIFY request is included, the <p-id> element value indicates the SIP PUBLISH request which triggered sending of the SIP NOTIFY request.

6.1.5.1.3 Test description

6.1.5.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The affiliation status of MCPTT User B, the targeted MCPTT User, is unknown.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.5.1.3.2 Test procedure sequence

Table 6.1.5.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a remotely initiated group call by user B in group A with verification of user B's affiliation status and user B not being notified of the remotely initiated group call request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX Subscription and Notification' as described in TS 36.579-1 [2] Table 5.3.29.3-1 to subscribe to affiliation status changes of a target user? | - | - | 1 | P |
| 3 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 to send a remotely initiated group call request to a remote user for a targeted group? | - | - | 2 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.1.5.1.3.3 Specific message contents

Table 6.1.5.1.3.3-1: SIP SUBSCRIBE from the UE (step 2, Table 6.1.5.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1 | | | | |
|--|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Expires | | | | |
| delta-seconds | "4294967295" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.1.3.3-2 | | | |

Table 6.1.5.1.3.3-2: MCPTT-Info in SIP SUBSCRIBE (Table 6.1.5.1.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_B | | | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.5.1.3.3-3: SIP NOTIFY from the SS (step 2, Table 6.1.5.1.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.29.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition PRESENCE-EVENT | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | PIDF | | |
| MIME-part-body | PIDF as described in Table 6.1.5.1.3.3-4 | | | |

Table 6.1.5.1.3.3-4: PIDF in SIP NOTIFY (Table 6.1.5.1.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.5.2-1, condition AFFILIATION | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| presence entity | | | | |
| entity attribute | Encrypted URI (NOTE 1) with value set to px_MCPTT_ID_User_B | | | |
| tuple id | | | | |
| Id attribute | Encrypted URI (NOTE 1) with value set to px_MCPTT_Client_B_ID | | | |
| status | | | | |
| affiliation | | | | |
| status | "affiliated" | | | |
| NOTE 1: Encrypted attribute as described in TS 36.579-1 [2] Table 5.5.13.3-1 | | | | |

Table 6.1.5.1.3.3-5: SIP MESSAGE from the UE (step 3, Table 6.1.5.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.1.3.3-6 | | | |

Table 6.1.5.1.3.3-6: MCPTT-Info in SIP MESSAGE (Table 6.1.5.1.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|--|---------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_A_ID | The MCPTT group identity of the targeted MCPTT group for the remotely initiated call | TS 24.379 [9] clause 10.1.5.2.1 | |
| anyExt | | | | |
| request-type | "remotely-initiated-group-call-request" | | TS 24.379 [9] clause 10.1.5.2.1 | |
| notify-remote-user | "false" | | TS 24.379 [9] clause 10.1.5.2.1 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.5.1.3.3-7: SIP MESSAGE from the SS (step 3, Table 6.1.5.1.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|--|-------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Identity | | | | |
| name-addr | px_MCX_SIP_PublicUserld_B | | TS 24.379 [9] clause 10.1.5.4 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.1.3.3-8 | | | |

Table 6.1.5.1.3.3-8: MCPTT-Info in SIP MESSAGE (Table 6.1.5.1.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|--|---------|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | TS 24.379 [9] clause 10.1.5.4 | |
| mcptt-calling-group-id | Encrypted (NOTE 1) <mcptt-calling-group- id> with mcpttURI set to px_MCPTT_Group_A_I D | | TS 24.379 [9] clause 10.1.5.4 | |
| anyExt | | | | |
| response-type | "remotely-initiated- group-call-response" | | TS 24.379 [9] clause 10.1.5.4 | |
| remotely-initiated-call- outcome | "success" | | TS 24.379 [9] clause 10.1.5.4 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

6.1.5.2 On-network / Remotely initiated group call / Client Terminated (CT)

6.1.5.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { UE (MCPTT Client) receives a request for a remotely initiated group call via a SIP MESSAGE
message }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and initiates a group call via a
SIP INVITE message and responds to the corresponding SIP 200 (OK) message with a SIP ACK message and
provides floor granted notification to the MCPTT User }
}
```

(2)

```
with { UE (MCPTT Client) having a request for a remotely initiated group call }
ensure that {
  when { UE (MCPTT Client) successfully initiates the requested group call }
  then { UE (MCPTT Client) sends a SIP MESSAGE message to indicate the status of the remotely
initiated group call }
}
```

(3)

```
with { UE (MCPTT Client) having an ongoing group call }
ensure that {
  when { UE (MCPTT Client) receives a SIP BYE message }
  then { UE (MCPTT Client) responds with a SIP 200 (OK) message and releases the call }
}
```

6.1.5.2.2 Conformance Requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 10.1.5.2.2, 10.1.1.2.1.1, 10.1.1.2.3.3. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 10.1.5.2.2]

Upon receiving a "SIP MESSAGE request for remotely initiated group call request for terminating client", the MCPTT client:

- 1) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "true", may indicate to the remote MCPTT user that a remotely initiated call request to call the targeted MCPTT group has been received; and
- 2) shall invoke the procedures of clause 10.1.1.2.1.1 to originate an MCPTT group call to the targeted MCPTT group with the following clarifications:
 - a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":
 - i) shall not indicate to the remote MCPTT user that a remotely initiated call request to call the targeted MCPTT group has been received; and
 - ii) shall not give any indication to the remote MCPTT user that the remotely initiated call origination is in progress.

Upon completion of the procedures of clause 10.1.1.2.1.1, the MCPTT client:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
 - a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4]; and
 - d) shall include in an application/resource-lists+xml MIME body the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
 - e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-request-uri> set to the MCPTT group identity called by the remote MCPTT user; and
 - ii) an <anyExt> element containing:
 - A) the <response-type> element set to a value of "remotely-initiated-group-call-response";
 - B) if the procedures of clause 10.1.1.2.1.1 were successful in originating an MCPTT group call to the targeted MCPTT group, a <remotely-initiated-call-outcome> element set to a value of "success"; and
 - C) if the procedures of clause 10.1.1.2.1.1 were not successful in originating an MCPTT group call to the targeted MCPTT group, a <remotely-initiated-call-outcome> element set to a value of "fail";
- 2) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the requesting MCPTT user; and
- 3) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in clause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in clause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in clause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in clause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in clause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in clause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in clause 10.1.3.1.

On receiving a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request:

- 1) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted"; or
- 2) if the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted";

the MCPTT client shall perform the actions specified in clause 6.2.8.1.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing group session, the MCPTT client shall follow the actions specified in clause 6.2.8.1.13.

[TS 24.379, clause 10.1.1.2.3.3]

Upon receiving a SIP BYE request for releasing the prearranged MCPTT group call, the MCPTT client shall follow the procedures as specified in clause 6.2.6.

6.1.5.2.3 Test description

6.1.5.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.1.5.2.3.2 Test procedure sequence

Table 6.1.5.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1-3 | Check: Does the UE (MCPTT client) correctly perform steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 to send the request for a remotely initiated group call to the UE (MCPTT client)? | - | - | 1 | P |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 5 | Void | - | - | - | - |
| 6-7 | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 for a remotely initiated group call response? | - | - | 2 | P |
| 7A | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 to release the call? | - | - | 3 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.1.5.2.3.3 Specific message contents

Table 6.1.5.2.3.3-1: SIP MESSAGE from the SS (Step 2, Table 6.1.5.2.3.2-1; Step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|--|-------------------|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| P-Asserted-Identity | | | | |
| name-addr | px_MCX_SIP_PublicUs erId_B | | TS 24.379 [9] clause 10.1.5.4 | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.2.3.3-2 | | | |

Table 6.1.5.2.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.1.5.2.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|--|---------|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_ID_User_A | | TS 24.379 [9] clause 10.1.5.4 | |
| mcptt-calling-group-id | Encrypted (NOTE 1) <mcptt-calling-group- id> with mcpttURI set to px_MCPTT_Group_A_I D | | TS 24.379 [9] clause 10.1.5.4 | |
| anyExt | | | | |
| request-type | "remotely-initiated- group-call-request" | | TS 24.379 [9] clause 10.1.5.4 | |
| notify-remote-user | "true" | | TS 24.379 [9] clause 10.1.5.4 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.2-1A. | | | | |

Table 6.1.5.2.3.3-3: SIP INVITE from the UE (step 4, Table 6.1.5.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.1.5.2.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.2.3.3-5 | | | |

Table 6.1.5.2.3.3-4: SDP in SIP INVITE (Table 6.1.5.2.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.1.5.2.3.3-5: MCPTT-Info in SIP INVITE (Table 6.1.5.2.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFER |
|---|

Table 6.1.5.2.3.3-6: SIP 200 (OK) from the SS (step 4, Table 6.1.5.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.1.5.2.3.3-7 | | | |

Table 6.1.5.2.3.3-7: SDP in SIP 200 (OK) (Table 6.1.5.2.3.3-6)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED |
|---|

Table 6.1.5.2.3.3-8: SIP MESSAGE from the UE (Step 6, Table 6.1.5.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|--|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.1.5.2.3.3-9 | | | |

Table 6.1.5.2.3.3-9: MCPTT-Info in SIP MESSAGE (Table 6.1.5.2.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|--|---------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-request-uri | Encrypted (NOTE 1) <mcptt-request-uri> with mcpttURI set to px_MCPTT_Group_A_ID | The MCPTT group identity called by the remote MCPTT user | TS 24.379 [9] clause 10.1.5.2.2 | |
| anyExt | | | | |
| response-type | "remotely-initiated-group-call-response" | | TS 24.379 [9] clause 10.1.5.2.2 | |
| remotely-initiated-call-outcome | "success" | | TS 24.379 [9] clause 10.1.5.2.2 | |
| NOTE 1: Encrypted element as described in TS 36.579-1 [2] Table 5.5.3.2.1-1A. | | | | |

Table 6.1.5.2.3.3-10: SIP BYE from the SS (step 8, Table 6.1.5.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|

6.2 Private Calls

6.2.1 On-network / Private Call / On-demand / Automatic Commencement Mode / With Floor Control / Upgrade to Emergency Call / Cancellation of Emergency on User request / Client Originated (CO)

6.2.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private and private emergency calls with automatic commencement }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private call, on-demand Automatic
Commencement Mode, no Force of automatic commencement, applying End-to-end communication security
with Floor Control }
  then { UE (MCPTT Client) sends a SIP INVITE message requesting private call on-demand Automatic
Commencement Mode, applying End-to-end communication security, and offering a media-level section
for a media-floor control entity, and, after indication from the MCPTT Server that the call was
established notifies the user }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT private call, on-demand Automatic Commencement
Mode with Floor Control }
ensure that {
  when { the MCPTT User engages in communication with the invited MCPTT User }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server (Floor
granting/release/deny) applying Floor Control confidentiality and integrity protection }
}
```

(3)

```
with { UE (MCPTT Client) having established an MCPTT private call, on-demand Automatic Commencement
Mode with Floor Control }
ensure that {
  when { the MCPTT User wants to upgrade the ongoing MCPTT private call to an MCPTT emergency
private call with floor control }
  then { UE (MCPTT Client) sends a SIP re-INVITE message requesting private emergency call on-
demand Automatic Commencement Mode offering a media-level section for a media-floor control entity,
and, upon receipt of a SIP 200 (OK) response considers the call as being upgraded to emergency
private call (emergency private call state = "MEPC 3: emergency-pc-granted") }
}
```

(4)

```
with { UE (MCPTT Client) having upgraded an MCPTT private call, on-demand Automatic Commencement
Mode with Floor Control to emergency private call with floor control }
ensure that {
  when { the MCPTT User engages in communication with the invited MCPTT User }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server including
override of the invited MCPTT user (who is not in MCPTT emergency state) and applying Floor Control
confidentiality and integrity protection }
}
```

(5)

```
with { UE (MCPTT Client) having upgraded an MCPTT private call, on-demand Automatic Commencement
Mode with Floor Control to emergency private call with floor control }
ensure that {
  when { the MCPTT User wants to cancel the ongoing MCPTT emergency private call }
  then { UE (MCPTT Client) sends a SIP re-INVITE request requesting the emergency state
cancellation, and, upon receipt of a SIP 200 (OK) response considers the emergency condition
cancelled and the call being reverted back to MCPTT Private Call }
}
```

(6)

```

with { UE (MCPTT Client) having an ongoing MCPTT private call, on-demand Automatic Commencement Mode
with Floor Control }
ensure that {
  when { the MCPTT User wants to terminate the ongoing MCPTT private call }
  then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) leaves the
MCPTT session }
}

```

6.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 4.6.2, 4.7, 6.2.1, 6.2.5.1, 6.2.8.3.4, 6.2.8.3.6, 11.1.1.2.1.1, 11.1.1.2.1.4, 11.1.1.2.1.5, 11.1.3.1.1.1, TS 24.380 clauses 4.1.1.2, 5.2.1, 5.2.2, 12.1.2.2, 13.1, 13.3.3, TS 33.180, clause 5.3.4. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 4.6.2]

Key aspects of MCPTT emergency private calls include:

- adjusted EPS bearer priority for both participants whether or not they are both in an emergency condition (i.e. both have their MCPTT emergency state set). This is achieved by using the Resource-Priority header field as specified in IETF RFC 4412 [29] with namespaces defined for use by MCPTT specified in draft-holmberg-dispatch-mcptt-rp-namespace [48];
- the initiator of the MCPTT emergency private call can override the other MCPTT user in the MCPTT emergency private call unless that user also has their MCPTT emergency state set;
- ...
- restoration of normal floor control priority participants when the emergency elevated priority is cancelled;
- requires the MCPTT user to be authorised to either originate or cancel an MCPTT emergency private call;
- ...
- the originator of the MCPTT emergency private call can request that the call use either manual or automatic commencement mode.

[TS 24.379, clause 4.7]

If a mission critical organisation requires MCPTT users to communicate using end-to-end security, a security context needs to be established between the initiator of the call and the recipient(s) of the call, prior to the establishment of media, or floor control signalling. This provides assurance to MCPTT users that no unauthorised access to communications is taking place within the MCPTT network. An MCPTT key management server (KMS) manages the security domain. For any end-point to use or access end-to-end secure communications, it needs to be provisioned with keying material associated to its identity by the KMS as specified in 3GPP TS 33.179 [46].

...

For private calls, the security context is initiated at call setup. An end-to-end security context is established that is unique to the pair of users involved in the call. The procedure involves transferral of an encapsulated private call key (PCK) and private call key id (PCK-ID) from the initiator to the terminator. The PCK is encrypted using the terminator's MCPTT ID and domain-specific material provided from the KMS. The PCK and PCK-ID are distributed within a MIKEY payload within the SDP offer of the private call request. This payload is called a MIKEY-SAKKE I_MESSAGE, as defined in IETF RFC 6509 [75], which ensures the confidentiality, integrity and authenticity of the payload. The encoding of the MIKEY payload in the SDP offer is described in IETF RFC 4567 [47] using an "a=key-mgmt" attribute. The payload is signed using a key associated to the identity of the initiating user. At the terminating side, the signature is validated. If valid, the UE extracts and decrypts the encapsulated PCK. The MCPTT UE also extracts the PCK-ID. This process is described in 3GPP TS 33.179 [46]. With the PCK successfully shared between the two MCPTT UEs, the UEs are able to use SRTP/SRTCP to create an end-to-end secure session.

End-to-end security is independent of the transmission path and hence is applicable to both on and off-network communications. With a security context established, the group call key and private call key can be used to encrypt media and, if required, floor control traffic between the end-points as described in 3GPP TS 24.380 [5] clause 13.

[TS 33.179, clause 5.3.4]

End-to-end communication security for either group or private calls requires the provisioning of key material from the KMS. The key material provisioned to each user is listed below:

- A KMSInit Response contains the Home KMS Certificate (domain specific key material associated to the KMS), and may contain:
 - An updated TrK for the user (to replace the offline-provisioned, bootstrap TrK).
- A KMSKeyProv Response contains zero, or more, KMSKeySets and may contain:
 - An updated TrK for the user (to replace existing TrK).
- A KMSCertCache Response may contain:
 - Home KMS Certificate(s) (current, updated or future).
 - External KMS Certificates. This is domain specific key material associated with other KMSs. It is required to enable secure communications across security domains.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and
- b) the codec(s) and media parameters and attributes with the following clarification:

...

- c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];

- 3) if floor control shall be used during the session, shall include an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12 for a media-floor control entity, consisting of:

- a) the port number for the media-floor control entity selected as specified in 3GPP TS 24.380 [5]; and
- b) the 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14; and

- 4) if end-to-end security is required for a private call and the SDP offer is not for establishing a pre-established session, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to release; and

4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 6.2.8.3.4]

On receiving a SIP 2xx response to a SIP request for an MCPTT emergency private call and if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted", the MCPTT client:

- 1) shall set the MCPTT emergency private priority state of the call to "MEPP 2: in-progress" if it was not already set;
- 2) shall set the MCPTT emergency private call state to "MEPC 3: emergency-pc-granted"; and

[TS 24.379, clause 6.2.8.3.6]

When the MCPTT emergency private call state is set to "MEPC 3: emergency-pc-granted" and the MCPTT emergency alert state is set to "MPEA 1: no-alert", the MCPTT client shall generate a SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given below.

NOTE 1: This procedure assumes that the MCPTT client in the calling procedure has verified that the MCPTT user has made an authorised request for cancelling MCPTT the in-progress emergency private call state of the call.

The MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <emergency-ind> element set to "false";
- 2) shall clear the MCPTT emergency state; and
- 3) shall set MCPTT emergency private priority state of the MCPTT emergency private call to "MEPP 3: cancel-pending".

NOTE 2: This is the case of an MCPTT user who has initiated an MCPTT emergency private call and wants to cancel it.

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- ...
- 3) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];

- 8) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
- 9) if an end-to-end security context needs to be established then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.179 [46];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.179 [46];
 - c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.179 [46];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.179 [46];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.179 [46]; and
 - g) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46]; and
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.179 [46].
- 10) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;
- 11) if implicit floor control is required, shall comply with the conditions specified in subclause 6.4;
- ...13) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
 - a) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and...
- 14) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "private";
- ...
- 16) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

- 1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

...

- 3) shall notify the user that the call has been successfully established.

[TS 24.379, clause 11.1.1.2.1.4]

Upon receiving a request from an MCPTT user to cancel the in-progress emergency condition on an MCPTT emergency private call, the MCPTT client shall generate a SIP re-INVITE request by following the UE session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user is not authorised to cancel the in-progress emergency condition on an MCPTT emergency private call as determined by the procedures of subclause 6.2.8.3.1.2, the MCPTT client:
 - a) should indicate to the MCPTT user that they are not authorised to cancel the in-progress emergency condition on an MCPTT emergency private call; and
 - b) shall skip the remaining steps of the current subclause;
- 2) shall, if the MCPTT user is cancelling an in-progress emergency condition and optionally an MCPTT emergency alert originated by the MCPTT user, include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.3.6;

...

- 4) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.3.3;
- 5) shall include in the SIP re-INVITE request an SDP offer the media parameters as currently established;

NOTE 1: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session associated with an MCPTT group session. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 6) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 7) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];
- 2) shall set the MCPTT emergency private priority state of the MCPTT private call to "MEPP 1: no-emergency";
- 3) shall set the MCPTT emergency private call state of the call to "MEPC 1: emergency-pc-capable"; and

[TS 24.379, clause 11.1.1.2.1.5]

Upon receiving a request from an MCPTT user to upgrade the ongoing MCPTT private call to an MCPTT emergency private call, the MCPTT client shall generate a SIP re-INVITE request as specified in 3GPP TS 24.229 [4], with the clarifications given below.

- 1) shall include an application/vnd.3gpp.mcptt-info+xml MIME body populated as specified in subclause 6.2.8.3.2;
- 2) shall include a Resource-Priority header field and comply with the procedures in subclause 6.2.8.3.3.
- 3) shall include an SDP offer with the media parameters as currently established according to 3GPP TS 24.229 [4];

NOTE: The SIP re-INVITE request can be sent within an on-demand session or a pre-established session associated with an MCPTT private call. If the SIP re-INVITE request is sent within a pre-established session, the media-level section for the offered MCPTT speech media stream and the media-level section of the offered media-floor control entity are expected to be the same as was negotiated in the existing pre-established session.

- 4) if an implicit floor request is required, shall indicate this as specified in subclause 6.4; and
- 5) shall send the SIP re-INVITE request according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP re-INVITE request the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall perform the actions specified in subclause 6.2.8.3.4.

[TS 24.379, clause 11.1.3.1.1.1]

Upon receiving a request from an MCPTT user to release an MCPTT private call session established using on-demand session signalling, the MCPTT client shall follow the procedures as specified in subclause 6.2.5.1.

[TS 24.380, clause 4.1.1.2]

At any point in time a group member can request permission to talk.

When all group members are silent, a group member can press the PTT button, meaning the request for permission to talk. The floor participant entity of this user reflects this request to the floor control server by sending a Floor Request message. If the floor control server decides to permit, it informs this permission for this request by sending a Floor Granted message to the requesting group member. The floor control server informs the initiation of the talk to the other group members by sending a Floor Taken message. Once the group member receives the permission, a permission indication (permission tone) is generated and the user can talk. The media packets (encoded voice) are sent to the controlling MCPTT server and from there they are distributed to all listeners of this group. The release of the PTT button indicates the user's intention to end talking. Once the PTT button is released, the floor participant sends a Floor Release message to the floor control server indicating that this user has finished talking. This cycle, starting from the Floor Granted message and ending with Floor Release message, is known as 'talk burst' or 'media burst'.

In the beginning of a call the initial talk permission request can be implied by the SIP message which initiates the call as specified in 3GPP TS 24.379 [2] without any specific Floor Request message.

A group member can also request for permission to talk by sending a Floor Request message during a talk burst. The floor control server can resolve this request in several ways.

1. If this request has higher priority than the ongoing talk burst, the floor control server revokes the current talk burst by sending a Floor Revoke message to the current talker. The current talker is interrupted and the current media burst is ended by the current floor participant by sending a Floor Release message. Then the floor control server sends a Floor Granted message to the revoking user and send Floor Taken message to other group members. Then a new media burst starts.
2. If this request does not have higher priority and floor request queuing is not used the floor control server rejects this request by sending a Floor Deny message to the requester. Then a reject indication (reject tone) is generated for the user. The ongoing talk burst continues.

...

During silence (when no talk burst is ongoing), the floor control server can send Floor Idle message to all floor participants from time to time. The floor control server sends Floor Idle message in the beginning of silence.

[TS 24.380, clause 5.2.1]

To be compliant with the procedures in the present document, an MCPTT client shall:

1. support the role of an MCPTT client as specified 3GPP TS 23.179 [5];
2. support the on-network MCPTT client role as specified in 3GPP TS 24.379 [2];
- ...
4. support media plane security as specified in clause 13.

To be compliant with the on-network procedures in the present document, an MCPTT client shall:

1. provide the role of a floor participant in on-network mode as specified in subclause 5.2.2;
2. provide the media mixer function as described in subclause 4.2.2 and support the related procedures in subclause 6.2;
- ...
4. provide PTT button events towards the on-network floor participant as specified in subclause 6.2;
5. provide means (sound, display, etc.) for indications towards the MCPTT user as specified in subclause 6.2;
6. support negotiating media plane control channel media level attributes as specified in subclause 4.3; and

[TS 24.380, clause 5.2.2]

To be compliant with the on-network procedures in the present document, a floor participant in on-network mode shall:

1. support the on-network floor control procedures as defined in 3GPP TS 23.179 [5];
2. support acting as an on-network floor participant as specified in subclause 6.2; and
3. support the on-network mode floor control protocol elements as specified in the clause 8.

A floor participant in on-network mode may:

1. support queuing of floor requests as specified in subclause 6.2 and subclause 4.1.1.2.

[TS 24.380, clause 12.1.2.2]

In an SDP offer, the "mc_priority" fmp attribute indicates (using an integer value between '1' and '255') the maximum floor priority that the offeror requests to be used with Floor Request messages sent by the offeror. In an SDP answer, the attribute parameter indicates the maximum priority level that the answerer has granted to the offeror. The value has to be equal or less than the value provided in the associated SDP offer.

NOTE 1: If the "mc_priority" fmp attribute is not used within an SDP offer or answer, a default priority value is assumed.

In an SDP offer, the "mc_granted" fmp attribute parameter indicates that the offeror supports the procedure where the answerer indicates, using the fmp attribute in the associated SDP answer, that the floor has been granted to the offeror.

NOTE 2: When the "mc_granted" fmp attribute is used in an SDP offer, it does not indicate an actual request for the floor. The SDP "mc_implicit_request" fmp attribute can be used to request the floor. In an SDP answer, the attribute indicates that the floor has been granted to the offeror.

NOTE 3: Once the offeror has been granted the floor, the offeror has the floor until it receives a Floor Revoke message, or until the offeror itself releases the floor by sending a Floor Release message, as described in the present specification.

In an SDP offer, the "mc_implicit_request" fmp attribute indicates that the offeror implicitly requests the floor (without the need to send a Floor Request message). In an SDP answer, the attribute parameter indicates that the answerer has accepted the implicit floor request. Once the answerer grants the floor to the offeror, the answerer will send a Floor Granted message.

NOTE 4: The usage of the "mc_implicit_request" fmp attribute in an SDP answer does not mean that the answerer has granted the floor to the offeror, only that the answerer has accepted the implicit floor request.

[TS 24.380, clause 13.1]

Media plane security provides integrity and confidentiality protection of individual media streams and media plane control messages in MCPTT sessions.

The media plane security is based on 3GPP MCPTT security solution including key management and end-to-end media and floor control messages protection as defined in 3GPP TS 33.179 [14].

Various keys and associated key identifiers protect:

1. RTP transported media;
2. RTCP transported media control messages (i.e. RTCP SR packets, RTCP RR packets, RTCP SDES packets);
3. RTCP APP transported floor control messages;

...

In an on-network private call:

1. if protection of media is negotiated, the PCK and the PCK-ID protect media sent and received by the MCPTT clients;
2. if protection of floor control messages sent using unicast between the MCPTT client and the participating MCPTT function serving the MCPTT client is negotiated, the CSK and the CSK-ID protect the floor control messages sent and received by the MCPTT client and by the participating MCPTT function;

...

4. if protection of media control messages sent using unicast between the MCPTT client and the participating MCPTT function serving the MCPTT client is negotiated, the CSK and the CSK-ID protect the media control messages sent and received using unicast by the MCPTT client and by a participating MCPTT function; and

...

The CSK and the CSK-ID are generated by the MCPTT client and provided to the participating MCPTT function serving the MCPTT client using SIP signalling according to 3GPP TS 24.379 [2].

..

The PCK and the PCK-ID are generated by the MCPTT client initiating the private call and provided to the MCPTT client receiving the private call using SIP signalling according to 3GPP TS 24.379 [2], using Connect message described in subclause 8.3.4 or using MONP signalling according to 3GPP TS 24.379 [2].

[TS 24.380, clause 13.3.3]

3. in an on-network private call:

A) if:

- i) protection of media is negotiated in originating call and the PCK and the PCK-ID were sent to the remote MCPTT client using SIP signalling according to 3GPP TS 24.379 [2]; or

...

then:

- i) shall encrypt sent media according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the PCK and PCK-ID as specified in subclause 13.2; and
- ii) shall decrypt received media according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the PCK and PCK-ID as specified in subclause 13.2;

- B) if protection of floor control messages is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:

- i) shall encrypt sent floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
- ii) shall decrypt received floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and

- D) if protection of media control messages sent using unicast between the participating MCPTT function and the MCPTT client is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:

- i) shall encrypt media control messages sent using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
- ii) shall decrypt media control messages received using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2;

6.2.1.3 Test description

6.2.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.1.3.2 Test procedure sequence

Table 6.2.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|--|------------------|------------|------|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a private call to user B with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a private call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1, 2 | P |
| 3-5 | Void | - | - | - | - |
| 5A | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | P |
| 6 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1? | - | - | 2 | P |
| 8-9 | Void | - | - | - | - |
| 10 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 11 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Deny' as described in TS 36.579-1 [2] Table 5.3A.14.3-1? | - | - | 2 | P |
| 12 | Void | - | - | - | - |
| 13 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 14 | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 15 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 17 | Void | - | - | - | - |
| 18 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 18 A | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 19 | Make the UE (MCPTT client) request upgrade of the call to an emergency private call with implicit floor request. (NOTE 1). | - | - | - | - |
| 20 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to upgrade the call to a emergency private call with implicit floor request? | - | - | 3, 4 | P |
| 21-22 | Void | - | - | - | - |
| 22 A | The UE (MCPTT client) provides floor granted notification to the user. (NOTE 1) | - | - | - | - |

| | | | | | |
|--|--|-----|------------|---|---|
| 23 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 24 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1? | - | - | 4 | P |
| 25-26 | Void | - | - | - | - |
| 27 | Make the UE (MCPTT client) request the floor. (NOTE 1): | - | - | - | - |
| 28 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 4 | P |
| 29 | Void | - | - | - | - |
| 30 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 31 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 4 | P |
| 32 | Void | - | - | - | - |
| 33 | Make the UE (MCPTT client) request downgrade of the call to a normal private call. (NOTE 1) | - | - | - | - |
| 34 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session modification' as described in TS 36.579-1 [2] Table 5.3A.6.3-1 to downgrade the call without implicit floor request? | - | - | 5 | P |
| 34 A | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 35-36 | Void | - | - | - | - |
| 36 A | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 36 B | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 37 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 38 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 39 | Void | - | - | - | - |
| 40 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 41 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 5 | P |
| 42-43 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.1.3.3 Specific message contents

Table 6.2.1.3.3-1: SIP INVITE from the UE (Step 2, Table 6.2.1.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.1.3.3-1B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.1.3.3-1C | | | |

Table 6.2.1.3.3-1A: Void**Table 6.2.1.3.3-1B: SDP in SIP INVITE (Table 6.2.1.3.3-1)**

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.2.1.3.3-1C: MCPTT-Info in SIP INVITE (Table 6.2.1.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL |
|---|

Table 6.2.1.3.3-1D: SIP 200 (OK) from the SS (step 2, Table 6.2.1.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.1.3.3-1E | | | |

Table 6.2.1.3.3-1E: SDP in SIP 200 (OK) (Table 6.2.1.3.3-1D)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.2.1.3.3-2: SIP INVITE from the UE (Step 20, Table 6.2.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE, PRIVATE-CALL, EMERGENCY-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.1.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.1.3.3-3 | | | |

Table 6.2.1.3.3-2A: SDP in SIP INVITE (Table 6.2.1.3.3-2)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|--|

Table 6.2.1.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.1.3.3-2)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL, EMERGENCY-CALL |
|---|

Table 6.2.1.3.3-3A: SIP 200 (OK) from the SS (step 20, Table 6.2.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.1.3.3-3B | | | |

Table 6.2.1.3.3-3B: SDP in SIP 200 (OK) (Table 6.2.1.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.2.1.3.3-4: SIP INVITE from the UE (Step 34, Table 6.2.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition re_INVITE, PRIVATE-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.1.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.1.3.3-5 | | | |

Table 6.2.1.3.3-4A: SDP in SIP INVITE (Table 6.2.1.3.3-4)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, SDP_OFFER |
|--|

Table 6.2.1.3.3-5: MCPTT-Info in SIP INVITE (Table 6.2.1.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 2 in TS 36.579-1 [2] Table 5.5.3.2.1-1 | | |

Table 6.2.1.3.3-5A: SIP 200 (OK) from the SS (step 34, Table 6.2.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.1.3.3-5B | | | |

Table 6.2.1.3.3-5B: SDP in SIP 200 (OK) (Table 6.2.1.3.3-3A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER |
|---|

Table 6.2.1.3.3-6..12: Void

Table 6.2.1.3.3-13: Floor Request (Step 28, Table 6.2.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition EMERGENCY_CALL. |
|--|

Table 6.2.1.3.3-14: Floor Granted (Steps 20, 28, Table 6.2.1.3.2-1; step 5, TS 36.579-1 [2] Table 5.3A.6.3-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY_CALL |
|---|

Table 6.2.1.3.3-15: Floor Release (Steps 24, 31, Table 6.2.1.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.16.3-1; step 1, TS 36.579-1 [2] Table 5.3A.15.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition EMERGENCY_CALL |
|---|

Table 6.2.1.3.3-16: Floor Taken (Step 24, Table 6.2.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.16.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition EMERGENCY_CALL |
|---|

Table 6.2.1.3.3-17: Floor Idle (Step 31, Table 6.2.1.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.15.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY_CALL |
|---|

6.2.2 On-network / Private Call / On-demand / Automatic Commencement Mode / With Floor Control / Upgrade to Emergency Call / Cancellation of Emergency on User request / Client Terminated (CT)

6.2.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private and private emergency calls with automatic commencement }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT private call, on-
demand Automatic Commencement Mode, no Force of automatic commencement, applying End-to-end
communication security with Floor Control }
```

then { UE (MCPTT Client) sends a SIP 200 (OK) accepting the establishment of an MCPTT private call, on-demand Automatic Commencement Mode applying End-to-end communication security with Floor Control, **and**, notifies the user for the call establishment }

(2)

with { UE (MCPTT Client) having established an On-demand Automatic Commencement Mode Private Call with Floor Control }
 ensure that {
 when { the MCPTT User (MCPTT Client) engages in communication with the inviting MCPTT User }
 then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server (Floor granting/release/deny) applying Floor Control confidentiality and integrity protection }
 }

(3)

with { UE (MCPTT Client) having established an MCPTT private call, on-demand Automatic Commencement Mode with Floor Control }
 ensure that {
 when { the MCPTT User (MCPTT Client) receives a request for upgrade of the ongoing MCPTT private call to an MCPTT emergency private call with floor control }
 then { UE (MCPTT Client) accepts the request and upon sending SIP 200 (OK) message considers the call as being upgraded to emergency private call (emergency private call state = "MEPC 3: emergency-pc-granted") }
 }

(4)

with { UE (MCPTT Client) having upgraded an On-demand Automatic Commencement Mode Private Call to emergency private call }
 ensure that {
 when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User }
 then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server including being able to handle override requested by the inviting MCPTT user and applying Floor Control confidentiality and integrity protection }
 }

(5)

with { UE (MCPTT Client) having upgraded an On-demand Automatic Commencement Mode Private Call to an Emergency Private Call }
 ensure that {
 when { the MCPTT User (MCPTT Client) receives a request to cancel the ongoing MCPTT emergency private call }
 then { UE (MCPTT Client) accepts the request and after sending a SIP 200 (OK) response considers the emergency condition cancelled and the call being reverted back to MCPTT Private Call }
 }

(6)

with { UE (MCPTT Client) having an ongoing On-demand Automatic Commencement Mode Private Call }
 ensure that {
 when { the MCPTT User (MCPTT Client) receives a request for termination of the ongoing MCPTT private call }
 then { UE (MCPTT Client) accept the request and after sending a SIP 200 (OK) response leaves the MCPTT session }
 }

6.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 4.6.2, 4.7, 6.2.2, 6.2.3.1.1, 6.2.6, 11.1.1.2.1.2, 11.1.1.2.1.3, 11.1.3.1.1.2, TS 24.380 clauses 4.1.1.2, 5.2.1, 5.2.2, 12.1.2.2, 13.1, 13.3.3, TS 33.180, clause 5.3.4. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 4.6.2]

Key aspects of MCPTT emergency private calls include:

- adjusted EPS bearer priority for both participants whether or not they are both in an emergency condition (i.e. both have their MCPTT emergency state set). This is achieved by using the Resource-Priority header field as

specified in IETF RFC 4412 [29] with namespaces defined for use by MCPTT specified in draft-holmberg-dispatch-mcptt-rp-namespace [48];

- the initiator of the MCPTT emergency private call can override the other MCPTT user in the MCPTT emergency private call unless that user also has their MCPTT emergency state set;
- ...
- restoration of normal floor control priority participants when the emergency elevated priority is cancelled;
- ...
- requires the targeted MCPTT user to be authorised to receive an MCPTT emergency private call;

[TS 24.379, clause 4.7]

If a mission critical organisation requires MCPTT users to communicate using end-to-end security, a security context needs to be established between the initiator of the call and the recipient(s) of the call, prior to the establishment of media, or floor control signalling. This provides assurance to MCPTT users that no unauthorised access to communications is taking place within the MCPTT network. An MCPTT key management server (KMS) manages the security domain. For any end-point to use or access end-to-end secure communications, it needs to be provisioned with keying material associated to its identity by the KMS as specified in 3GPP TS 33.179 [46].

...

For private calls, the security context is initiated at call setup. An end-to-end security context is established that is unique to the pair of users involved in the call. The procedure involves transferral of an encapsulated private call key (PCK) and private call key id (PCK-ID) from the initiator to the terminator. The PCK is encrypted using the terminator's MCPTT ID and domain-specific material provided from the KMS. The PCK and PCK-ID are distributed within a MIKEY payload within the SDP offer of the private call request. This payload is called a MIKEY-SAKKE I_MESSAGE, as defined in IETF RFC 6509 [75], which ensures the confidentiality, integrity and authenticity of the payload. The encoding of the MIKEY payload in the SDP offer is described in IETF RFC 4567 [47] using an "a=key-mgmt" attribute. The payload is signed using a key associated to the identity of the initiating user. At the terminating side, the signature is validated. If valid, the UE extracts and decrypts the encapsulated PCK. The MCPTT UE also extracts the PCK-ID. This process is described in 3GPP TS 33.179 [46]. With the PCK successfully shared between the two MCPTT UEs, the UEs are able to use SRTP/SRTCP to create an end-to-end secure session.

End-to-end security is independent of the transmission path and hence is applicable to both on and off-network communications. With a security context established, the group call key and private call key can be used to encrypt media and, if required, floor control traffic between the end-points as described in 3GPP TS 24.380 [5] clause 13.

[TS 33.180, clause 5.3.4]

End-to-end communication security for either group or private calls requires the provisioning of key material from the KMS. The key material provisioned to each user is listed below:

- A KMSInit Response contains the Home KMS Certificate (domain specific key material associated to the KMS), and may contain:
 - An updated TrK for the user (to replace the offline-provisioned, bootstrap TrK).
- A KMSKeyProv Response contains zero, or more, KMSKeySets and may contain:
 - An updated TrK for the user (to replace existing TrK).
- A KMSCertCache Response may contain:
 - Home KMS Certificate(s) (current, updated or future).
 - External KMS Certificates. This is domain specific key material associated with other KMSs. It is required to enable secure communications across security domains.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and
- 4) if included in the SDP offer, shall include the media-level section of the offered media-floor control entity consisting of:
 - a) an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12; and
 - b) 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14.

[TS 24.379, clause 6.2.3.1.1]

When performing the automatic commencement mode procedures, the MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- ...
- 7) shall, if the incoming SIP INVITE request does not contain a Replaces header field, include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;

NOTE: In the case of a new emergency call where the terminating client is using a pre-established session, the SIP INVITE request containing a Replaces header is used to replace the pre-established session.

- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- ...

10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 3) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency private call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency private call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ...
 - b) shall set the MCPTT emergency private priority state to "MEPP 2: in-progress" for this private call;
- 4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

- 5) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.1 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode;

[TS 24.379, clause 11.1.1.2.1.3]

Upon receipt of a SIP re-INVITE request for an existing private call session, the MCPTT client shall:

- 1) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP re-INVITE request to upgrade this call to an MCPTT emergency private call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency private call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information; and
 - b) shall set the MCPTT emergency private priority state to "MEPP 2: in-progress" for this private call;
- 2) if the SIP re-INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "false":
 - a) should display to the MCPTT user an indication that this is a SIP re-INVITE request to downgrade this emergency private call to a normal priority private call and:
 - i) should display the MCPTT ID of the sender of the SIP re-INVITE request contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and
 - ..
 - b) shall set the MCPTT emergency private priority state to "MEPP 1: no-emergency" for this private call; and
 - c) if the MCPTT emergency private call state of the call is set to "MEPC 3: emergency-call-granted", shall set the MCPTT emergency private call state of the call to "MEPC 1: emergency-pc-capable";
- 3) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 4) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user if not done so in step 1 or step 2 above;

NOTE 1: As this is a re-INVITE for an existing MCPTT private call session, there is no attempt made to change the answer-mode from its current state.

- 5) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 6) if the SIP re-INVITE request was received within an on-demand session, shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4]; and
- 9) shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 11.1.3.1.1.2]

Upon receiving a SIP BYE request for private call session, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

[TS 24.380, clause 4.1.1.2]

At any point in time a group member can request permission to talk.

When all group members are silent, a group member can press the PTT button, meaning the request for permission to talk. The floor participant entity of this user reflects this request to the floor control server by sending a Floor Request

message. If the floor control server decides to permit, it informs this permission for this request by sending a Floor Granted message to the requesting group member. The floor control server informs the initiation of the talk to the other group members by sending a Floor Taken message. Once the group member receives the permission, a permission indication (permission tone) is generated and the user can talk. The media packets (encoded voice) are sent to the controlling MCPTT server and from there they are distributed to all listeners of this group. The release of the PTT button indicates the user's intention to end talking. Once the PTT button is released, the floor participant sends a Floor Release message to the floor control server indicating that this user has finished talking. This cycle, starting from the Floor Granted message and ending with Floor Release message, is known as 'talk burst' or 'media burst'.

In the beginning of a call the initial talk permission request can be implied by the SIP message which initiates the call as specified in 3GPP TS 24.379 [2] without any specific Floor Request message.

A group member can also request for permission to talk by sending a Floor Request message during a talk burst. The floor control server can resolve this request in several ways.

1. If this request has higher priority than the ongoing talk burst, the floor control server revokes the current talk burst by sending a Floor Revoke message to the current talker. The current talker is interrupted and the current media burst is ended by the current floor participant by sending a Floor Release message. Then the floor control server sends a Floor Granted message to the revoking user and send Floor Taken message to other group members. Then a new media burst starts.
2. If this request does not have higher priority and floor request queuing is not used the floor control server rejects this request by sending a Floor Deny message to the requester. Then a reject indication (reject tone) is generated for the user. The ongoing talk burst continues.

...

During silence (when no talk burst is ongoing), the floor control server can send Floor Idle message to all floor participants from time to time. The floor control server sends Floor Idle message in the beginning of silence.

[TS 24.380, clause 5.2.1]

To be compliant with the procedures in the present document, an MCPTT client shall:

1. support the role of an MCPTT client as specified 3GPP TS 23.179 [5];
2. support the on-network MCPTT client role as specified in 3GPP TS 24.379 [2];

...

4. support media plane security as specified in clause 13.

To be compliant with the on-network procedures in the present document, an MCPTT client shall:

1. provide the role of a floor participant in on-network mode as specified in subclause 5.2.2;
2. provide the media mixer function as described in subclause 4.2.2 and support the related procedures in subclause 6.2;

...

4. provide PTT button events towards the on-network floor participant as specified in subclause 6.2;
5. provide means (sound, display, etc.) for indications towards the MCPTT user as specified in subclause 6.2;
6. support negotiating media plane control channel media level attributes as specified in subclause 4.3; and

[TS 24.380, clause 5.2.2]

To be compliant with the on-network procedures in the present document, a floor participant in on-network mode shall:

1. support the on-network floor control procedures as defined in 3GPP TS 23.179 [5];
2. support acting as an on-network floor participant as specified in subclause 6.2; and
3. support the on-network mode floor control protocol elements as specified in the clause 8.

A floor participant in on-network mode may:

1. support queuing of floor requests as specified in subclause 6.2 and subclause 4.1.1.2.

[TS 24.380, clause 12.1.2.2]

In an SDP offer, the "mc_priority" fmp attribute indicates (using an integer value between '1' and '255') the maximum floor priority that the offeror requests to be used with Floor Request messages sent by the offeror. In an SDP answer, the attribute parameter indicates the maximum priority level that the answerer has granted to the offeror. The value has to be equal or less than the value provided in the associated SDP offer.

NOTE 1: If the "mc_priority" fmp attribute is not used within an SDP offer or answer, a default priority value is assumed.

In an SDP offer, the "mc_granted" fmp attribute parameter indicates that the offeror supports the procedure where the answerer indicates, using the fmp attribute in the associated SDP answer, that the floor has been granted to the offeror.

NOTE 2: When the "mc_granted" fmp attribute is used in an SDP offer, it does not indicate an actual request for the floor. The SDP "mc_implicit_request" fmp attribute can be used to request the floor. In an SDP answer, the attribute indicates that the floor has been granted to the offeror.

NOTE 3: Once the offeror has been granted the floor, the offeror has the floor until it receives a Floor Revoke message, or until the offeror itself releases the floor by sending a Floor Release message, as described in the present specification.

In an SDP offer, the "mc_implicit_request" fmp attribute indicates that the offeror implicitly requests the floor (without the need to send a Floor Request message). In an SDP answer, the attribute parameter indicates that the answerer has accepted the implicit floor request. Once the answerer grants the floor to the offeror, the answerer will send a Floor Granted message.

NOTE 4: The usage of the "mc_implicit_request" fmp attribute in an SDP answer does not mean that the answerer has granted the floor to the offeror, only that the answerer has accepted the implicit floor request.

[TS 24.380, clause 13.1]

Media plane security provides integrity and confidentiality protection of individual media streams and media plane control messages in MCPTT sessions.

The media plane security is based on 3GPP MCPTT security solution including key management and end-to-end media and floor control messages protection as defined in 3GPP TS 33.179 [14].

Various keys and associated key identifiers protect:

1. RTP transported media;
2. RTCP transported media control messages (i.e. RTCP SR packets, RTCP RR packets, RTCP SDES packets);
3. RTCP APP transported floor control messages;

...

In an on-network private call:

1. if protection of media is negotiated, the PCK and the PCK-ID protect media sent and received by the MCPTT clients;
2. if protection of floor control messages sent using unicast between the MCPTT client and the participating MCPTT function serving the MCPTT client is negotiated, the CSK and the CSK-ID protect the floor control messages sent and received by the MCPTT client and by the participating MCPTT function;

...

4. if protection of media control messages sent using unicast between the MCPTT client and the participating MCPTT function serving the MCPTT client is negotiated, the CSK and the CSK-ID protect the media control messages sent and received using unicast by the MCPTT client and by a participating MCPTT function; and

...

The CSK and the CSK-ID are generated by the MCPTT client and provided to the participating MCPTT function serving the MCPTT client using SIP signalling according to 3GPP TS 24.379 [2].

..

The PCK and the PCK-ID are generated by the MCPTT client initiating the private call and provided to the MCPTT client receiving the private call using SIP signalling according to 3GPP TS 24.379 [2], using Connect message described in subclause 8.3.4 or using MONP signalling according to 3GPP TS 24.379 [2].

[TS 24.380, clause 13.3.3]

3. in an on-network private call:

A) if:

...

- ii) protection of media is negotiated in terminating call and the PCK and the PCK-ID were received from the remote MCPTT client using SIP signalling according to 3GPP TS 24.379 [2];

then:

- i) shall encrypt sent media according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the PCK and PCK-ID as specified in subclause 13.2; and
 - ii) shall decrypt received media according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the PCK and PCK-ID as specified in subclause 13.2;
- B) if protection of floor control messages is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:
- i) shall encrypt sent floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
 - ii) shall decrypt received floor control messages according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
- D) if protection of media control messages sent using unicast between the participating MCPTT function and the MCPTT client is negotiated and the CSK and the CSK-ID were sent to the participating MCPTT function using SIP signalling according to 3GPP TS 24.379 [2]:
- i) shall encrypt media control messages sent using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2; and
 - ii) shall decrypt media control messages received using unicast according to IETF RFC 3711 [16] and 3GPP TS 33.179 [14] using SRTP-MK, SRTP-MS and SRTP-MKI generated using the CSK and CSK-ID as specified in subclause 13.2;

6.2.2.3 Test description

6.2.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.2.3.2

Test procedure sequence

Table 6.2.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a private call with automatic commencement mode and floor control? | - | - | 1 | P |
| 2-3 | Void | - | - | - | - |
| 4 | The SS (MCPTT server) sends a Floor Taken message. | <-- | Floor Taken | - | - |
| 5 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Deny' as described in TS 36.579-1 [2] Table 5.3A.14.3-1? | - | - | 2 | P |
| 7 | Void | - | - | - | - |
| 8 | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 9 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 2 | P |
| 11 | Void | - | - | - | - |
| 12 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 14-15 | Void | - | - | - | - |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to upgrade the call to an emergency private call? | - | - | 3 | P |
| 17 | Void | - | - | - | - |
| - | EXCEPTION: Step 18a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE displays information to the User upon accepting establishment/releasing of Emergency call. | - | - | - | - |
| 18a1 | IF pc_MCX_DisplayInfoEmergencyCall THEN Check: Does the UE (MCPTT client) notify the user that the call has been upgraded to an emergency private call? (NOTE 1) (NOTE 2) | - | - | 3 | P |
| 19 | The SS (MCPTT server) sends a Floor Taken message. | ← | Floor Taken | - | - |
| 20 | Void | - | - | - | - |
| 21 | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 22 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 23 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 4 | P |
| 24 | Void | - | - | - | - |

| | | | | | |
|--|---|-----|--------------|---|---|
| 25 | The SS (MCPTT server) sends a Floor Revoke message. | <-- | Floor Revoke | - | - |
| 26 | Void | - | - | - | - |
| - | EXCEPTION: In parallel to the events described in step 27, the step specified in Table 6.2.2.3.2-2 takes place. | - | - | - | - |
| 27 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Taken' as described in TS 36.579-1 [2] Table 5.3A.16.3-1? | - | - | 4 | P |
| 28-30 | Void | - | - | - | - |
| 31 | The SS (MCPTT server) sends a Floor Idle message. | <-- | Floor Idle | - | - |
| 32 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 33 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Granted' as described in TS 36.579-1 [2] Table 5.3A.11.3-1? | - | - | 4 | P |
| 34 | Void | - | - | - | - |
| 35 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to downgrade the call? | - | - | 5 | P |
| 36 | Void | - | - | - | - |
| - | EXCEPTION: Step 37a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE displays information to the User upon accepting establishment/releasing of Emergency call. | - | - | - | - |
| 37a1 | IF pc_MCX_DisplayInfoEmergencyCall THEN Check: Does the UE (MCPTT client) notify the user that the call has been downgraded? (NOTE 1) (NOTE 2) | - | - | 5 | P |
| 38-39 | Void | - | - | - | - |
| 39A | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 39B | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 2 | P |
| 39C | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 40 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Request – Floor Deny' as described in TS 36.579-1 [2] Table 5.3A.14.3-1? | - | - | 2 | P |
| 41 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 6 | P |
| 42 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The display information may include - indication for upgrade/downgrade of call - the MCPTT ID of the sender of the SIP INVITE. | | | | | |

Table 6.2.2.3.2-2: Parallel Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) notify the user that the permission to send RTP media is being revoked? (NOTE 1 in Table 6.2.2.3.2-1) | - | - | 2 | P |

6.2.2.3.3 Specific message contents

Table 6.2.2.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.2.2.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.2.3.3-1B | | | |

Table 6.2.2.3.3-1A: SDP in SIP INVITE (Table 6.2.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER, PRIVATE-CALL

Table 6.2.2.3.3-1B: MCPTT-Info in SIP INVITE (Table 6.2.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL

Table 6.2.2.3.3-2: SIP INVITE from the SS (Step 16, Table 6.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.2.2.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.2.3.3-3 | | | |

Table 6.2.2.3.3-2A: SDP in SIP INVITE (Table 6.2.2.3.3-2, Table 6.2.2.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_OFFER, PRIVATE-CALL

Table 6.2.2.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.2.3.3-2)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL, EMERGENCY-CALL

Table 6.2.2.3.3-4: SIP INVITE from the SS (Step 35, Table 6.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.2.2.3.3-2A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.2.3.3-5 | | | |

Table 6.2.2.3.3-5: MCPTT-Info in SIP INVITE (Table 6.2.2.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| emergency-ind | Encrypted <emergency-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |
| alert-ind | Encrypted <alert-ind> with mcpttBoolean set to false | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.2.2-1 | | |

Table 6.2.2.3.3-5A: SIP 200 (OK) from the UE (Steps 1, 16, 35, Table 6.2.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME part body | SDP Message as described in Table 6.2.2.3.3-5B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.2.3.3-5C | | | |

Table 6.2.2.3.3-5B: SDP in SIP 200 (OK) (Table 6.2.2.3.3-5A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER |
|---|

Table 6.2.2.3.3-5C: MCPTT-Info in SIP 200 (OK) (Table 6.2.2.3.3-5A)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

Table 6.2.2.3.3-6..12: Void

Table 6.2.2.3.3-13: Floor Request (Steps 23, 33, Table 6.2.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.11.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1, condition EMERGENCY_CALL. |
|--|

Table 6.2.2.3.3-14: Floor Granted (Steps 23, 33, Table 6.2.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.11.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY_CALL.

Table 6.2.2.3.3-15: Floor Release (Step 27, Table 6.2.2.3.2-1; step 1, TS 36.579-1 [2] Table 5.3A.16.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1, condition EMERGENCY_CALL

Table 6.2.2.3.3-16: Floor Taken (Steps 19, 27, Table 6.2.2.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.16.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition EMERGENCY_CALL

Table 6.2.2.3.3-17: Floor Revoke (Step 25, Table 6.2.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.8-1, condition EMERGENCY-CALL

Table 6.2.2.3.3-18: Floor Idle (Steps 21, 31, Table 6.2.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition EMERGENCY-CALL.

6.2.3 On-network / Private Call / On-demand / Automatic Commencement Mode / Without Floor Control / Client Originated (CO)

6.2.3.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with automatic commencement }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private call, on-demand Automatic
Commencement Mode, no Force of automatic commencement, without floor control }
  then { UE (MCPTT Client) sends a SIP INVITE message requesting on-demand Automatic Commencement
Mode and not offering a media-level section for a media-floor control entity, and, after indication
from the MCPTT Server that the call was established notifies the user }
}
```

(2)

```
with { UE (MCPTT Client) having an ongoing On-demand Automatic Commencement Mode Private Call
without Floor control }
ensure that {
  when { the MCPTT User wants to terminate the ongoing MCPTT private call }
  then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) leaves the
MCPTT session }
}
```

6.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.1, 6.2.5.1, 11.1.1.2.1.1, 11.1.2.2, 11.1.3.1.1.1. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and

- b) the codec(s) and media parameters and attributes with the following clarification:

- i) if the MCPTT client is initiating a call to a group identity;

- ii) if the <preferred-voice-encodings> element is present in the group document retrieved by the group management client as specified in 3GPP TS 24.381 [31] containing an <encoding> element with a "name" attribute; and

- iii) if the MCPTT client supports the encoding name indicated in the value of the "name" attribute;

then the MCPTT client:

- i) shall insert the value of the "name" attribute in the <encoding name> field of the "a=rtpmap" attribute as defined in IETF RFC 4566 [12]; and

- c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to release; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;

...

- 3) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 8) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user, according to rules and procedures of IETF RFC 5366 [20];

...

- 13) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
 - a) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

...

- 14) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "private";

...

- 16) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

- 1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

...

- 3) shall notify the user that the call has been successfully established.

[TS 24.379, clause 11.1.2.2]

When the MCPTT user wants to make an on-demand private call without floor control, the MCPTT client shall follow the procedures in subclause 11.1.1.2.1.1 with the following exceptions:

- 1) in step 10) of subclause 11.1.1.2.1.1, the MCPTT client shall not offer a media-level section for a media-floor control entity; and
- 2) step 11) of subclause 11.1.1.2.1.1 shall be ignored.

[TS 24.379, clause 11.1.3.1.1.1]

Upon receiving a request from an MCPTT user to release an MCPTT private call session established using on-demand session signalling, the MCPTT client shall follow the procedures as specified in subclause 6.2.5.1.

6.2.3.3 Test description

6.2.3.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.3.3.2 Test procedure sequence

Table 6.2.3.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a private call to user B with automatic commencement mode and without floor control. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a private call with automatic commencement mode and without floor control according to option c of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-4 | Void | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| 6-7 | Void | - | - | - | - |
| 8 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| 10-11 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.3.3.3 Specific message contents

Table 6.2.3.3.3-1: SIP INVITE from the UE (Step 2, Table 6.2.3.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|---|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.3.3.3-2 | | | |
| MIME body part | | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.3.3.3-2A | | | |

Table 6.2.3.3.3-2: SDP Message in SIP INVITE (Table 6.2.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL

Table 6.2.3.3.3-2A: MCPTT-Info in SIP INVITE (Table 6.2.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL

Table 6.2.3.3.3-3: SIP 200 (OK) from the SS (Step 2, Table 6.2.3.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.3.3.3-4 | | | |

Table 6.2.3.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.3.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL

Table 6.2.3.3.3-5: Void

6.2.4 On-network / Private Call / On-demand / Automatic Commencement Mode / Without Floor Control / Client Terminated (CT)

6.2.4.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private and private emergency calls with automatic commencement }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT private call, on-
demand Automatic Commencement Mode, no Force of automatic commencement, without Floor Control }
  then { UE (MCPTT Client) sends a SIP 200 (OK) accepting the establishment of an MCPTT private
call, on-demand Automatic Commencement Mode and not offering a media-level section for a media-floor
control entity }

```

(2)

```

with { UE (MCPTT Client) having an ongoing On-demand Automatic Commencement Mode Private Call }
ensure that {
  when { the MCPTT User (MCPTT Client) receives a request for termination of the ongoing MCPTT
private call }
  then { UE (MCPTT Client) accept the request and after sending a SIP 200 (OK) response leaves the
MCPTT session }
}

```

6.2.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.2, 6.2.3.1.1, 6.2.6, 11.1.1.2.1.2, 11.1.2.2, 11.1.3.1.1.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and

[TS 24.379, clause 6.2.3.1.1]

When performing the automatic commencement mode procedures, the MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and

2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.2.2]

Upon receipt of an initial SIP INVITE request for the private call with an SDP offer not including a media-level section for a media-floor control entity, the MCPTT client shall consider it as the request for private call without floor control and shall follow the procedures as specified in subclause 11.1.1.2.1.2 for on-demand session and subclause 11.1.1.2.2.2 for pre-established session.

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
- ...
- e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

...

- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.1 if one of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode;

[TS 24.379, clause 11.1.3.1.1.2]

Upon receiving a SIP BYE request for private call session, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

6.2.4.3 Test description

6.2.4.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4.

The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.4.3.2 Test procedure sequence

Table 6.2.4.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a private call with automatic commencement mode and without floor control? | - | - | 1 | P |
| 2-4 | Void | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 6-7 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.4.3.3 Specific message contents

Table 6.2.4.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.4.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.4.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.4.3.3-2A | | | |

Table 6.2.4.3.3-2: SDP Message in SIP INVITE (Table 6.2.4.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.4.3.3-2A: MCPTT-Info in SIP INVITE (Table 6.2.4.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL |
|---|

Table 6.2.4.3.3-3: SIP 200 (OK) from the UE (Step 1, Table 6.2.4.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.4.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.4.3.3-6 | | | |

Table 6.2.4.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.4.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL |
|---|

Table 6.2.4.3.3-5: Void**Table 6.2.4.3.3-6: MCPTT-Info in SIP 200 (OK) (Table 6.2.4.3.3-3)**

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

6.2.5 On-network / Private Call / Emergency Private Call / On-demand / Automatic Commencement Mode / Force of automatic commencement mode / Without Floor Control / Client Originated (CO)

6.2.5.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service including authorization to
initiate and cancel emergency calls }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private emergency call, on-demand,
automatic commencement mode, Force of automatic commencement mode without floor control }
  then { UE (MCPTT Client) requests Private Emergency Call establishment without floor control by
sending a SIP INVITE message including a Priv-Answer-Mode header field with the value "Auto" not
offering a media-level section for a media-floor control entity, and, after indication from the
MCPTT Server that the call was established notifies the user}
}

```

(2)

```

with { UE (MCPTT Client) having established an Emergency Private Call }
ensure that {
  when { the MCPTT User wants to terminate the ongoing MCPTT emergency private call }
}

```



```
    then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) leaves the
MCPTT session }
    }
```

6.2.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.1, 6.2.5.1, 6.2.8.3.2, 6.2.8.3.3, 6.2.8.3.4, 6.2.8.3.6, 11.1.1.2.1.1, 11.1.2.2, 11.1.3.1.1.1. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and
- b) the codec(s) and media parameters and attributes with the following clarification:

...

- c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];

- 4) if end-to-end security is required for a private call and the SDP offer is not for establishing a pre-established session, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to release; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 6.2.8.3.2]

When the MCPTT emergency private call state is set to "MEPC 1: emergency-pc-capable" and this is an authorised request for an MCPTT emergency private call as determined by the procedures of subclause 6.2.8.3.1.1, the MCPTT client:

- 1) shall set the MCPTT emergency state if not already set;
- 2) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body in the SIP request an <emergency-ind> element set to "true" and set the MCPTT emergency private call state to "MEPC 2: emergency-pc-requested";

- 3) if the MCPTT user has also requested an MCPTT emergency alert to be sent and this is an authorised request for MCPTT emergency alert as determined by the procedures of subclause 6.2.8.3.1.3, shall:
 - a) include in the application/vnd.3gpp.mcptt-info+xml MIME body the <alert-ind> element set to "true" and set the MCPTT private emergency alert state to "MPEA 2: emergency-alert-confirm-pending"; and
 - b) include in the SIP request the specific location information for MCPTT emergency alert as specified in subclause 6.2.9.1;
- 4) if the MCPTT user has not requested an MCPTT emergency alert to be sent, shall set the <alert-ind> element of the application/vnd.3gpp.mcptt-info+xml MIME body to "false"; and
- 5) if the MCPTT emergency private priority state of this private call is set to a value other than "MEPP 2: in-progress" shall set the MCPTT emergency private priority state to "MEPP 4: confirm-pending".

[TS 24.379, clause 6.2.8.3.3]

If the MCPTT emergency private call state is set to either "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted" and this is an authorised request for an MCPTT emergency private call as determined by the procedures of subclause 6.2.8.3.1.1, or the MCPTT emergency private priority state of the call is set to "MEPP 2: in-progress", the MCPTT client shall include in the SIP request a Resource-Priority header field populated with the values for an MCPTT emergency private call as specified in subclause 6.2.8.1.15.

NOTE: The MCPTT client ideally would not need to maintain knowledge of the in-progress emergency state of the call (as tracked on the MCPTT client by the MCPTT client emergency private state) but can use this knowledge to provide a Resource-Priority header field set to emergency level priority, which starts the infrastructure priority adjustment process sooner than otherwise would be the case.

[TS 24.379, clause 6.2.8.3.4]

On receiving a SIP 2xx response to a SIP request for an MCPTT emergency private call and if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted", the MCPTT client:

- 1) shall set the MCPTT emergency private priority state of the call to "MEPP 2: in-progress" if it was not already set;
- 2) shall set the MCPTT emergency private call state to "MEPC 3: emergency-pc-granted"; and

[TS 24.379, clause 6.2.8.3.6]

When the MCPTT emergency private call state is set to "MEPC 3: emergency-pc-granted" and the MCPTT emergency alert state is set to "MPEA 1: no-alert", the MCPTT client shall generate a SIP re-INVITE request according to 3GPP TS 24.229 [4] with the clarifications given below.

NOTE 1: This procedure assumes that the MCPTT client in the calling procedure has verified that the MCPTT user has made an authorised request for cancelling MCPTT the in-progress emergency private call state of the call.

The MCPTT client:

- 1) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcptt-info+xml MIME body as defined in clause F.1 with the <emergency-ind> element set to "false";
- 2) shall clear the MCPTT emergency state; and
- 3) shall set MCPTT emergency private priority state of the MCPTT emergency private call to "MEPP 3: cancel-pending".

NOTE 2: This is the case of an MCPTT user who has initiated an MCPTT emergency private call and wants to cancel it.

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- 2) if the MCPTT user has requested the origination of an MCPTT emergency private call or is originating an MCPTT private call and the MCPTT emergency state is already set, the MCPTT client:
 - a) shall, if this is an authorised request for an MCPTT emergency private call as determined by the procedures of subclause 6.2.8.3.1.1, comply with the procedures in subclause 6.2.8.3.2; and
 - b) should, if this is an unauthorised request for an MCPTT emergency private call as determined in step a) above, indicate to the MCPTT user that they are not authorised to initiate an MCPTT emergency private call;
- 3) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 8) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
- 9) if an end-to-end security context needs to be established then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.179 [46];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.179 [46];
 - c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.179 [46];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.179 [46];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.179 [46]; and
 - g) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46]; and
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.179 [46].
- 10) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;
- ...
- 12) if force of automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];

...

14) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "private";

15) if the MCPTT emergency private call state is set to either "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted" or the MCPTT emergency private priority state for this private call is set to "MEPP 2: in-progress", the MCPTT client shall comply with the procedures in subclause 6.2.8.3.3; and

16) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

2) if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted", shall perform the actions specified in subclause 6.2.8.3.4; and

3) shall notify the user that the call has been successfully established.

[TS 24.379, clause 11.1.2.2]

Upon receipt of an initial SIP INVITE request for the private call with an SDP offer not including a media-level section for a media-floor control entity, the MCPTT client shall consider it as the request for private call without floor control and shall follow the procedures as specified in subclause 11.1.1.2.1.2 for on-demand session and subclause 11.1.1.2.2.2 for pre-established session.

[TS 24.379, clause 11.1.3.1.1.1]

Upon receiving a request from an MCPTT user to release an MCPTT private call session established using on-demand session signalling, the MCPTT client shall follow the procedures as specified in subclause 6.2.5.1.

6.2.5.3 Test description

6.2.5.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.

- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.5.3.2 Test procedure sequence

Table 6.2.5.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of an emergency private call to user B with force of automatic commencement mode and without floor control. (NOTE 1). | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a private call with automatic commencement mode and without floor control according to option c of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-4 | Void | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| 6-7 | Void | - | - | - | - |
| 8 | Make the UE (MCPTT client) release the call. (NOTE 1): | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| 10-11 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.5.3.3 Specific message contents

Table 6.2.5.3.3-1: SIP INVITE from the UE (Step 2, Table 6.2.5.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL, EMERGENCY-CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | Not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.5.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.5.3.3-3 | | | |

Table 6.2.5.3.3-2: SDP Message in SIP INVITE (Table 6.2.5.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|
|--|

Table 6.2.5.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.5.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL, INVITE_REFER, EMERGENCY-CALL |
|---|

Table 6.2.5.3.3-4: SIP 200 (OK) from the SS (Step 2, Table 6.2.5.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.5.3.3-5 | | | |

Table 6.2.5.3.3-5: SDP Message in SIP 200 (OK) (Table 6.2.5.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL |
|---|

Table 6.2.5.3.3-6: Void

6.2.6 On-network / Private Call / Emergency Private Call / On-demand / Automatic Commencement Mode / Force of automatic commencement mode / Without Floor Control / Client Terminated (CT)

6.2.6.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service including authorization to
receive an MCPTT private call, the MCPTT service setting for answering the call is set to manual
commencement mode }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT emergency private
call, On-demand Automatic Commencement Mode, Force of automatic commencement mode without floor
control }
  then { UE (MCPTT Client) accepts the call (automatic commencement) by sending a SIP 200 (OK)
message accepting the private emergency call, on-demand Automatic Commencement Mode, not offering a
media-level section for a media-floor control entity, and, optionally notifies the user }
}

```

(2)

```

with { UE (MCPTT Client) having established an MCPTT Emergency Private Call }
ensure that {
  when { the UE (MCPTT Client) is informed by the remote client that the ongoing MCPTT emergency
private call has been cancelled }
  then { UE (MCPTT Client) accept the request and after sending a SIP 200 (OK) response leaves the
MCPTT session }
}

```

6.2.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.2, 6.2.3.1.1, 6.2.6, 11.1.1.2.1.2, 11.1.2.2, 11.1.3.1.1.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and

[TS 24.379, clause 6.2.3.1.1]

When performing the automatic commencement mode procedures, the MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- ...
- 7) shall, if the incoming SIP INVITE request does not contain a Replaces header field, include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;

NOTE: In the case of a new emergency call where the terminating client is using a pre-established session, the SIP INVITE request containing a Replaces header is used to replace the pre-established session.

- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- ...

- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 3) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":
 - a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency private call and:
 - i) should display the MCPTT ID of the originator of the MCPTT emergency private call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

...

- b) shall set the MCPTT emergency private priority state to "MEPP 2: in-progress" for this private call;

...

- 5) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];

...

- 7) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.1 if one of the following conditions are met:

...

- c) SIP INVITE request contains a Priv-Answer-Mode header field with the value of "Auto"; and

[TS 24.379, clause 11.1.2.2]

Upon receipt of an initial SIP INVITE request for the private call with an SDP offer not including a media-level section for a media-floor control entity, the MCPTT client shall consider it as the request for private call without floor control and shall follow the procedures as specified in subclause 11.1.1.2.1.2 for on-demand session and subclause 11.1.1.2.2.2 for pre-established session.

[TS 24.379, clause 11.1.3.1.1.2]

Upon receiving a SIP BYE request for private call session, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

6.2.6.3 Test description

6.2.6.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)

- receive emergency calls; MCPTT service setting for answering the call is set to manual commencement mode (3GPP TS 24.483 [12], /<x>/<x>/Common/PrivateCall/AutoCommence="false", /<x>/<x>/Common/PrivateCall/ManualCommence="true")
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.6.3.2 Test procedure sequence

Table 6.2.6.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a private emergency call with force of automatic commencement mode and without floor control? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| - | EXCEPTION: Step 3a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE displays information to the User upon accepting establishment/releasing of private call. | - | - | - | - |
| 3a1 | IF pc_MCX_DisplayInfoEmergencyCall THEN Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) (NOTE 2) | - | - | 1 | P |
| 4-5 | Void | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 7-8 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The display information may include <ul style="list-style-type: none"> - indication for upgrade/downgrade of call - the MCPTT ID of the sender of the SIP INVITE. | | | | | |

6.2.6.3.3 Specific message contents

Table 6.2.6.3.3-1: MCPTT User Profile (Preamble, USIM)

| Derivation Path: TS 36.579-1 [2], Table 5.5.8.3-1 | | | | |
|---|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-user-profile | | | | |
| cp:ruleset | | | | |
| cp:rule | | | | |
| cp:actions | | | | |
| allow-automatic-commencement | false | | | |

Table 6.2.6.3.3-2: SIP INVITE from the SS (Step 1, Table 6.2.6.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | Not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.6.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.6.3.3-3A | | | |

Table 6.2.6.3.3-3: SDP Message in SIP INVITE (Table 6.2.6.3.3-2)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.6.3.3-3A: MCPTT-Info in SIP INVITE (Table 6.2.6.3.3-2)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL, EMERGENCY-CALL |
|---|

Table 6.2.6.3.3-3: SIP 200 (OK) from the UE (Step 1, Table 6.2.6.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.6.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.4.3.3-5 | | | |

Table 6.2.6.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.6.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL |
|---|

Table 6.2.6.3.3-5: MCPTT-Info in SIP 200 (OK) (Table 6.2.6.3.3-3)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|

Table 6.2.6.3.3-6: Void

6.2.7 On-network / Private Call / On-demand / Manual Commencement Mode / Without Floor Control / Client Originated (CO)

6.2.7.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate
private calls with manual commencement }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT on-demand Manual Commencement private
call without floor control }
    then { UE (MCPTT Client) requests On-demand Manual Commencement Mode Private Call establishment
without floor control by sending a SIP INVITE message not offering a media-level section for a
media-floor control entity, and, after indication from the MCPTT Server that the call was
established the UE notifies the user }
}

```

(2)

```

with { UE (MCPTT Client) having established an MCPTT on-demand Manual Commencement private call
without floor control }
ensure that {
  when { the MCPTT User wants to cancel the ongoing MCPTT on-demand Manual Commencement private call
}
    then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) response
leaves the MCPTT session }
}

```

6.2.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.1, 6.2.5.1, 11.1.1.2.1.1, 11.1.2.2, 11.1.3.1.1.1. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

- 1) shall set the IP address of the MCPTT client for the offered MCPTT speech media stream and, if floor control shall be used, for the offered media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP offer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

- a) the port number for the media stream selected; and
- b) the codec(s) and media parameters and attributes with the following clarification:

...

- i) shall insert the value of the "name" attribute in the <encoding name> field of the "a=rtptime" attribute as defined in IETF RFC 4566 [12]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4];
- ...
- 4) if end-to-end security is required for a private call and the SDP offer is not for establishing a pre-established session, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to release; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- 9...
- 3) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
 - 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
 - 7) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
 - 8) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
 - 9) if an end-to-end security context needs to be established then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.179 [46];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.179 [46];

- c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.179 [46];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.179 [46];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.179 [46]; and
 - g) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46]; and
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.179 [46].
- 10) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;
- ...
- 13) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
- b) if manual commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Manual" according to the rules and procedures of IETF RFC 5373 [18];
- 14) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "private";
- ...
- 16) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

- 1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

...

- 3) shall notify the user that the call has been successfully established.

[TS 24.379, clause 11.1.2.2]

When the MCPTT user wants to make an on-demand private call without floor control, the MCPTT client shall follow the procedures in subclause 11.1.1.2.1.1 with the following exceptions:

- 1) in step 10) of subclause 11.1.1.2.1.1, the MCPTT client shall not offer a media-level section for a media-floor control entity; and
- 2) step 11) of subclause 11.1.1.2.1.1 shall be ignored.

[TS 24.379, clause 11.1.3.1.1.1]

Upon receiving a request from an MCPTT user to release an MCPTT private call session established using on-demand session signalling, the MCPTT client shall follow the procedures as specified in subclause 6.2.5.1.

6.2.7.3 Test description

6.2.7.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.7.3.2 Test procedure sequence

Table 6.2.7.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|--|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a private call to user B with manual commencement mode and without floor control. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO private call establishment with manual commencement' as described in TS 36.579.1 [2] Table 5.3.35.3-1 to establish a private call with manual commencement mode and without floor control? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| 7-8 | Void | - | - | - | - |
| 9 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| 11-12 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.2.7.3.3 Specific message contents

Table 6.2.7.3.3-1: SIP INVITE from the UE (Step 2, Table 6.2.7.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL, MANUAL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.7.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.7.3.3-2A | | | |

Table 6.2.7.3.3-2: SDP Message in SIP INVITE (Table 6.2.7.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.7.3.3-2A: MCPTT-Info in SIP INVITE (Table 6.2.7.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL |
|---|

Table 6.2.7.3.3-3: SIP 200 (OK) from the SS (Step 2, Table 6.2.7.3.2-1; step 5, TS 36.579-1 [2] Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.7.3.3-4 | | | |

Table 6.2.7.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.7.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.7.3.3-5: Void

6.2.8 On-network / Private Call / On-demand / Manual Commencement Mode / Without Floor Control / Client Terminated (CT)

6.2.8.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service including authorization to
receive an MCPTT private call }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT private call, On-
demand Manual Commencement Mode without floor control }
  then { UE (MCPTT Client) notifies the User for the incoming call responding to the Server with a
SIP 180 (Ringing) message, and, after the User accepts the call sends to the Server a SIP 200 (OK)
message, and, does not apply floor control }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT Private Call }
ensure that {
  when { the MCPTT User (MCPTT Client) is informed for the termination of the ongoing MCPTT private
call }
  then { UE (MCPTT Client) accepts the request and after sending a SIP 200 (OK) response leaves
the MCPTT session }
}
```

6.2.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.2, 6.2.3.2.1, 6.2.6, 11.1.1.2.1.2, 11.1.1.2.1.3, 11.1.3.1.1.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4]; and
 - c) "i=" field set to "speech" according to 3GPP TS 24.229 [4]; and

[TS 24.379, clause 6.2.3.2.1]

The MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 180 (Ringing) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 180 (Ringing) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 180 (Ringing) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 180 (Ringing) response; and
- 5) shall send the SIP 180 (Ringing) response to the MCPTT server.

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

5) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of the present document to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];

6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;

...

8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.1 if either of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode; or

[TS 24.379, clause 11.1.2.2]

Upon receipt of an initial SIP INVITE request for the private call with an SDP offer not including a media-level section for a media-floor control entity, the MCPTT client shall consider it as the request for private call without floor control and shall follow the procedures as specified in subclause 11.1.1.2.1.2 for on-demand session and subclause 11.1.1.2.2.2 for pre-established session.

[TS 24.379, clause 11.1.3.1.1.2]

Upon receiving a SIP BYE request for private call session, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

6.2.8.3 Test description

6.2.8.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.8.3.2 Test procedure sequence

Table 6.2.8.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|------|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 to establish a private call with manual commencement mode and without floor control? | - | - | 1 | P |
| 2-6 | Void. | - | - | - | - |
| 7 | Wait 5 sec | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 9-10 | Void. | - | - | - | - |

6.2.8.3.3 Specific message contents

Table 6.2.8.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.8.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.8.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.8.3.3-2B | | | |

Table 6.2.8.3.3-2: SDP Message in SIP INVITE (Table 6.2.8.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.8.3.3-2B: MCPTT-Info in SIP INVITE (Table 6.2.8.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL |
|---|

Table 6.2.8.3.3-3: SIP 200 (OK) from the UE (Step 1, Table 6.2.8.3.2-1; step 6, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.8.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.8.3.3-4A | | | |

Table 6.2.8.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.8.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL |
|---|
|---|

Table 6.2.8.3.3-4A: MCPTT-Info in SIP 200 (OK) (Table 6.2.8.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|
|---|

Table 6.2.8.3.3-5: Void

6.2.9 On-network / Private Call / Within a pre-established session / Automatic Commencement Mode / Without Floor Control / Client Originated (CO)

6.2.9.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with automatic commencement, and, having established a pre-established
session }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private call within the pre-
established session, Automatic Commencement Mode, no Force of automatic commencement, without floor
control }
  then { UE (MCPTT Client) sends a SIP REFER request outside a dialog indicating Automatic
Commencement Mode and not offering a media-level section for a media-floor control entity, and,
after receiving a Connect message from the participating MCPTT function sends an Acknowledgment
message indicating that the connection is accepted }
}

```

(2)

```

with { UE (MCPTT Client) having Private Call Within a pre-established session, Automatic
Commencement Mode Private Call without Floor control }
ensure that {
  when { the MCPTT User wants to release the ongoing MCPTT private call }
  then { UE (MCPTT Client) sends a REFER request with the value "BYE" in the URI in the Refer-To
header field and after receiving a SIP 200 (OK) leaves the MCPTT session }
}

```

6.2.9.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.2.2, 11.1.1.2.2.1, 11.1.3.1.2.1, 6.2.5.2, TS 24.380 clauses 4.1.2.1, 4.1.2.2, 9.2.2.3.2, 9.2.2.4.6. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.1.2.2]

When the MCPTT user wants to make a private call without floor control using a pre-established session, the MCPTT client shall follow the procedures in subclause 11.1.1.2.2.1 with the exception that step 8 c) i) is re-written as:

- if the SDP parameters of the pre-established session contain a media-level section of a media-floor control entity or if end-to-end security is required for the private call, an application/sdp MIME body containing the SDP parameters of the pre-established session according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1. If the pre-established session was established with implicit floor control, then the application/sdp MIME body shall not contain the implicit floor request as specified in subclause 6.4.

[TS 24.379, clause 11.1.1.2.2.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call within a pre-established session the MCPTT client shall generate a SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], with the clarifications given below.

...

The MCPTT client populates the SIP REFER request as follows:

- 1) shall include the Request-URI set to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 2) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 3) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 4) shall include the option tag "multiple-refer" in the Require header field;
- 5) may include a P-Preferred-Identity header field in the SIP REFER request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 6) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];
- 7) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL.
- 8) shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to the MCPTT ID of the called user, extended with the following URI header fields:

NOTE: Characters that are not formatted as ASCII characters are escaped in the following URI header fields

..

- b) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
 - i) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include an Answer-Mode header field with the value "Automatic" according to rules and procedures of IETF RFC 5373 [18]; and

...

- c) shall include in a hname "body" URI header field:
 - i) ...
 - ii) an application/vnd.3gpp.mcptt-info MIME body with the <session-type> element set to "private"; and
 - iii) an application/resources-list MIME body with an <entry> element containing a "uri" attribute set to the MCPTT ID of the called user;

...

11) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session.

The MCPTT client shall send the SIP REFER request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a final SIP 2xx response to the SIP REFER request the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 11.1.3.1.2.1]

Upon receiving a request from an MCPTT user to release an MCPTT private call within a pre-established session, the MCPTT client shall follow the procedures as specified in subclause 6.2.5.2.

[TS 24.379, clause 6.2.5.2]

When the MCPTT client wants to release an MCPTT session using a pre-established session, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to release;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP REFER request, the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 4.1.2.1]

A pre-established session can be used when initiating a pre-arranged group call, a chat group call or a private call. Similarly a pre-established session can be released for reuse after the termination of a pre-arranged group call, chat group call and private call.

The media plane control messages related to call setup over a pre-established session are sent over the channel used for media plane control. The media plane control messages related to the release of a call which was setup over a pre-established session, without terminating the pre-established session, are sent over the channel used for media plane control. The unicast channel for media plane control is over the MCPTT-4 reference point.

[TS 24.380, clause 4.1.2.2]

For a pre-arranged group call, when the originator initiates the call setup indicating the use of a pre-established session using SIP messages as specified in 3GPP TS 24.379 [2], the participating MCPTT function (which serves the originating MCPTT client) sends to the originating MCPTT client a Connect message after the controlling MCPTT function accepts the initiation of this call. After the reception of this Connect message the originating MCPTT client sends an Acknowledgment message by indicating that the connection is accepted or by indicating that the connection is not accepted. If the connection is accepted by the originating MCPTT client, the floor control for this call continues as specified in clause 6.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgment message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.10; and
 - d. shall enter the 'U: Pre-established session in use' state; or

[TS 24.380, clause 9.2.2.4.6]

Upon receiving a 2xx response to the sent SIP REFER request as described in 3GPP TS 24.379 [2] when the call is released, but the Pre-established Session is kept alive the MCPTT client:

1. shall enter the 'U: Pre-established session not in use' state; and
2. shall terminate the instance of 'Floor participant state transition diagram for basic operation' state machine as specified in subclause 6.2.4.

6.2.9.3 Test description

6.2.9.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state.
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.9.3.2 Test procedure sequence

Table 6.2.9.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a private call to user B using the pre-established session with automatic commencement mode and without floor control. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish an MCPTT private call without floor control? | - | - | 1 | P |
| 3-5 | Void | - | - | - | - |
| 5A | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 5B | Check: Does the UE (MCPTT client) send a Floor Request message in the next 5 sec? | --> | Floor Request | 1 | F |
| 6 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.4.3-1? | - | - | 2 | P |
| 8-9 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The media plane control messages related to call setup/release over a pre-established session are sent over the channel used for media plane control. | | | | | |

6.2.9.3.3 Specific message contents

Table 6.2.9.3.3-1: SIP REFER from the UE (Step 2, Table 6.2.9.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition PRIVATE-CALL | | | | |
|--|---|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.9.3.3-1A | | | |

Table 6.2.9.3.3-1A: Resource-lists in SIP REFER (Table 6.2.9.3.2-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, PRIVATE-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.2.9.3.3-1B |
|---|

Table 6.2.9.3.3-1B: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.2.9.3.3-1A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition PRIVATE-CALL | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.9.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.9.3.3-2A | | | |

Table 6.2.9.3.3-2: SDP Message in SIP REFER (Table 6.2.9.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, PRIVATE-CALL, WITHOUT_FLOORCONTROL

Table 6.2.9.3.3-2A: MCPTT-Info in SIP header fields (Table 6.2.9.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL, INVITE-REFER

Table 6.2.9.3.3-3: SIP 200 (OK) from the SS (Step 2, Table 6.2.9.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | As described in Table 6.2.9.3.3-3A | | | |

Table 6.2.9.3.3-3A: SDP Message in SIP OK (Table 6.2.9.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL

Table 6.2.9.3.3-3B: Connect (Step 2, Table 6.2.9.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, WITHOUT_FLOORCONTROL, ACK

Table 6.2.9.3.3-4-5: Void

6.2.10 On-network / Private Call / Within a pre-established session / Automatic Commencement Mode / Without Floor Control / Client Terminated (CT)

6.2.10.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private calls with automatic commencement, and, having established a pre-established
session, Automatic Commencement Mode without End-to-end communication security and without floor
control }
ensure that {
  when { the UE (MCPTT Client) receives a media plane control Connect message as a part of request
for establishment of a client Terminated MCPTT private call, within the pre-established session }
    then { UE (MCPTT Client) sends a media plane control Acknowledgement message accepting the
establishment of the media plane and thereby the establishment of the MCPTT private call }
```

(2)

```
with { UE (MCPTT Client) having Private Call Within a pre-established session }
ensure that {
  when { the MCPTT User (MCPTT Client) receives a media plane control Disconnect message for
termination of the ongoing MCPTT private call }
    then { UE (MCPTT Client) accept the request by sending a media plane control Acknowledgement
message and releases the call but keeps the pre-established session, and, does not terminate the
pre-established session }
}
```

6.2.10.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.380 clauses 4.1.2.1, 4.1.2.3, 9.2.2.3.2, 9.2.2.3.4. Unless otherwise stated these are Rel-13 requirements.

[TS 24.380, clause 4.1.2.1]

A pre-established session can be used when initiating a pre-arranged group call, a chat group call or a private call. Similarly a pre-established session can be released for reuse after the termination of a pre-arranged group call, chat group call and private call.

The media plane control messages related to call setup over a pre-established session are sent over the channel used for media plane control. The media plane control messages related to the release of a call which was setup over a pre-established session, without terminating the pre-established session, are sent over the channel used for media plane control. The unicast channel for media plane control is over the MCPTT-4 reference point.

[TS 24.380, clause 4.1.2.3]

When an MCPTT client leaves a call (as specified in 3GPP TS 24.379 [2]) which was setup over a pre-established session without releasing the pre-established session, this pre-established session can be used for another call.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.10; and
 - d. shall enter the 'U: Pre-established session in use' state; or

[TS 24.380, clause 9.2.2.3.4]

Upon reception of a Disconnect message the MCPTT client:

1. if the first bit in the subtype of the Disconnect message is set to '1' (acknowledgement is required), shall send the Acknowledgement message with the Reason Code set to 'Accepted'; and
2. shall remain in 'U: Pre-established session not in use' state.

6.2.10.3 Test description

6.2.10.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.10.3.2 Test procedure sequence

Table 6.2.10.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT Call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.8.3-1? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| 3 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 4A | Check: Does the UE (MCPTT client) send a Floor Request message in the next 5 sec? | --> | Floor Request | 1 | F |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.5.3-1? | - | - | 2 | P |
| 6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) notify the user that the call has been released? (NOTE 1): | - | - | 2 | P |
| 8 | Void | - | - | - | - |
| 9 | Make the UE (MCPTT client) request the establishment of a private call to user B using the pre-established session with automatic commencement mode and without floor control. (NOTE 1). NOTE: This is to verify that although the Client has released the call it has not terminated the pre-established session. | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish a private call without floor control? | - | - | 2 | P |
| 11-12 | Void | - | - | - | - |
| 13 | Wait for 5 sec. | - | - | - | - |
| 14 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 15 | The UE (MCPTT client) performs procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.4.3-1 | - | - | - | - |
| 16 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The media plane control messages related to call setup/release over a pre-established session are sent over the channel used for media plane control. | | | | | |

6.2.10.3.3 Specific message contents

Table 6.2.10.3.3-1: Connect (Step 1, Table 6.2.10.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.8.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.10.3.3-2..3: Void

Table 6.2.10.3.3-4: SIP REFER from the UE (Step 10, Table 6.2.10.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition PRIVATE-CALL | | | | |
|--|--|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.10.3.3-4A | | | |

Table 6.2.10.3.3-4A: Resource-lists (Table 6.2.10.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, PRIVATE-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.2.10.3.3-4B

Table 6.2.10.3.3-4B: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.2.10.3.3-4A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition PRIVATE-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.10.3.3.5 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.10.3.3-5A | | | |

Table 6.2.10.3.3-5: SDP Message in SIP REFER (Table 6.2.10.3.3-4B)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, PRIVATE-CALL, WITHOUT_SECURITY, WITHOUT_FLOORCONTROL

Table 6.2.10.3.3-5A: MCPTT-Info in SIP header fields (Table 6.2.10.3.3-4B)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE-REFER

Table 6.2.10.3.3-6: SIP 200 (OK) from the SS (Step 10, Table 6.2.10.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | As described in Table 6.2.10.3.3-7 | | | |

Table 6.2.10.3.3-7: SDP Message in SIP 200 (OK) (Table 6.2.10.3.3-6)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.10.3.3-7A: Connect (Step 10, Table 6.2.10.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, WITHOUT_FLOORCONTROL, ACK |
|---|

Table 6.2.10.3.3-8..9: Void

6.2.11 On-network / Private Call / Within a pre-established session / Manual Commencement Mode / Without Floor Control / Release of the Call and the pre-established session / Client Terminated (CT)

6.2.11.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private calls with manual commencement, and, having established a pre-established session, without End-to-end communication security and without floor control }
ensure that {
  when { the UE (MCPTT Client) receives a SIP re-INVITE message as a part of request for establishment of a client Terminated MCPTT private call, within the pre-established session, Manual Commencement Mode }
  then { UE (MCPTT Client) notifies the User for the incoming call, and, responds to the Server with a SIP 180 (Ringing) message, and, after the User accepts the call sends to the Server a SIP 200 (OK) message }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private calls with automatic commencement, and, having established a pre-established session, Automatic Commencement Mode without End-to-end communication security and without floor control, and, the User having accepted a request for the establishment of a client Terminated MCPTT private call within the pre-established session }
ensure that {
  when { the UE (MCPTT Client) receives a media plane control Connect message as a part of request for establishment of a client Terminated MCPTT private call, within the pre-established session }
  then { UE (MCPTT Client) sends a media plane control Acknowledgement message accepting the establishment of the media plane and thereby the establishment of the MCPTT private call }
}
```

(3)

```
with { UE (MCPTT Client) having Private Call Within a pre-established session }
ensure that {
  when { the MCPTT User (MCPTT Client) is informed for the termination of the ongoing MCPTT private call by the Server sending a SIP BYE message }
  then { UE (MCPTT Client) accepts the request and after sending a SIP 200 (OK) response terminates the call and the pre-established MCPTT session }
}
```

6.2.11.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 6.2.3.1.1, 6.2.3.2.1, 6.2.6, 11.1.1.2.1.2, 11.1.1.2.2.2, 11.1.2.2, TS 24.380 clauses 4.1.2.1, 4.1.2.3, 9.2.2.3.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 6.2.3.1.1]

- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- 6) shall, if the incoming SIP INVITE request contains a Replaces header field, include in the SDP answer in the SIP 200 (OK) response to the SDP offer the parameters used for the pre-established session identified by the contents of the Replaces header field;
- 7) shall, if the incoming SIP INVITE request does not contain a Replaces header field, include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;

NOTE: In the case of a new emergency call where the terminating client is using a pre-established session, the SIP INVITE request containing a Replaces header is used to replace the pre-established session.

- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- 9) shall, if the incoming SIP INVITE request contains a Replaces header field, release the pre-established session identified by the contents of the Replaces header field; and
- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.3.2.1]

The MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 180 (Ringing) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 180 (Ringing) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 180 (Ringing) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 180 (Ringing) response; and
- 5) shall send the SIP 180 (Ringing) response to the MCPTT server.

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

...

- 8) shall perform the manual commencement procedures specified in subclause 6.2.3.2.1 if either of the following conditions are met:
 - a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode; or

[TS 24.379, clause 11.1.1.2.2.2]

The MCPTT client shall follow the procedures for termination of multimedia sessions as specified in subclause 11.1.1.2.1.2 with the following clarifications:

...

- 2) if the MCPTT client is targeted for a new normal priority private call, the MCPTT client receives a SIP re-INVITE request rather than a SIP INVITE request.

[TS 24.379, clause 11.1.2.2]

Upon receipt of an initial SIP INVITE request for the private call with an SDP offer not including a media-level section for a media-floor control entity, the MCPTT client shall consider it as the request for private call without floor control and shall follow the procedures as specified in subclause 11.1.1.2.1.2 for on-demand session and subclause 11.1.1.2.2.2 for pre-established session.

[TS 24.380, clause 4.1.2.1]

A pre-established session can be used when initiating a pre-arranged group call, a chat group call or a private call. Similarly a pre-established session can be released for reuse after the termination of a pre-arranged group call, chat group call and private call.

The media plane control messages related to call setup over a pre-established session are sent over the channel used for media plane control. The media plane control messages related to the release of a call which was setup over a pre-established session, without terminating the pre-established session, are sent over the channel used for media plane control. The unicast channel for media plane control is over the MCPTT-4 reference point.

[TS 24.380, clause 4.1.2.3]

A call setup over a pre-established session can also be released by using the specifications in 3GPP TS 24.379 [2] (without the use of Disconnect message) as a result the pre-established session, which has been used for this call, is also released.

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.11; and
 - d. shall enter the 'U: Pre-established session in use' state; or

6.2.11.3 Test description

6.2.11.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.11.3.2

Test procedure sequence

Table 6.2.11.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 to establish a private call without floor control? Note: The session has been established by the UE (MCPTT client) and the request is for manual answer mode, therefore INVITE is used for establishing the call as specified in TS 24.380 [10], clause 9.3.2.3.3 and TS 24.379 [9] clause 11.1.1.2.2.2. | - | - | 1 | P |
| 2-3 | Void. | - | - | - | - |
| 4 | The SS (MCPTT server) sends a Connect message. | <-- | Connect | - | - |
| 5 | Check: Does the UE (MCPTT client) send an Acknowledge? | --> | Acknowledge | 2 | P |
| 6 | Void. | - | - | - | - |
| 7 | Make the UE (MCPTT client) request the floor. (NOTE 1). | - | - | - | - |
| 7A | Check: Does the UE (MCPTT client) send a Floor Request message in the next 5 sec? | --> | Floor Request | 1 | F |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? NOTE: This way of release is used to trigger not only release of the call but also release of the pre-established session, see TS 24.380 [10], clause 4.1.2.3. Whether the session was released is then verified with the step 12. | - | - | 3 | P |
| 9 | Void | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) notify the user that the call has been released? (NOTE 2) | - | - | 3 | P |
| 11 | Void | - | - | - | - |
| 12 | Make the UE (MCPTT client) request the establishment of a private call to user B with manual commencement mode and without floor control. (NOTE 2) | - | - | - | - |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO private call establishment with manual commencement' as described in TS 36.579.1 [2] Table 5.3.35.3-1 to establish a private call with manual commencement mode and without floor control? Note: If the session was not terminated then the UE (MCPTT client) will send a REFER. | - | - | 2 | P |
| 14-16 | Void. | - | - | - | - |
| 17 | Make the UE (MCPTT client) release the call. (NOTE 2) | - | - | - | - |
| 18 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| 19 | Void | - | - | - | - |
| NOTE 1: The media plane control messages related to call setup/release over a pre-established session are sent over the channel used for media plane control. | | | | | |
| NOTE 2: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.11.3.3 Specific message contents

Table 6.2.11.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.11.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MANUAL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.11.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.11.3.3-2A | | | |

Table 6.2.11.3.3-2: SDP Message in SIP INVITE (Table 6.2.11.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, SDP_OFFER, PRE_ESTABLISHED_SESSION, WITHOUT_SECURITY, WITHOUT_FLOORCONTROL

Table 6.2.11.3.3-2A: MCPTT-Info in SIP INVITE (Table 6.2.11.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL

Table 6.2.11.3.3-3: SIP 200 (OK) from the UE (Step 3, Table 6.2.11.3.2-1; step 6, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.11.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.11.3.3-4A | | | |

Table 6.2.11.3.3-4: SDP Message in SIP 200 (OK) (Table 6.2.11.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL

Table 6.2.11.3.3-4A: MCPTT-Info in SIP 200 (OK) (Table 6.2.11.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP

Table 6.2.11.3.3-5: Void**Table 6.2.11.3.3-6: Connect (Step 4, Table 6.2.11.3.2-1)**

Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, WITHOUT_FLOORCONTROL

Table 6.2.11.3.3-7: Void

Table 6.2.11.3.3-8: SIP INVITE from the UE (Step 13, Table 6.2.11.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL, MANUAL | | | | |
|---|--|-------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP-Message as described in Table 6.2.11.3.3-9 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.11.3.3-9A | | | |

Table 6.2.11.3.3-9: SDP Message in SIP INVITE (Table 6.2.11.3.3-8)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL

Table 6.2.11.3.3-9A: MCPTT-Info in SIP INVITE (Table 6.2.11.3.3-8)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL

Table 6.2.11.3.3-10: SIP 200 (OK) from the SS (step 13, Table 6.2.11.3.2-1; step 5, TS 36.579-1 [2] Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.11.3.3-9B | | | |

Table 6.2.11.3.3-11: SDP in SIP 200 (OK) (Table 6.2.11.3.3-3A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL

6.2.12 On-network / Private Call / Private Call Call-Back Request / Private Call Call-Back Cancel Request / Client Originated (CO) / Private call call-back fulfilment

6.2.12.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and
receive private calls with manual commencement and to request and cancel private call call-back }
ensure that {
when { the MCPTT User requests sending a private call call-back request to a targeted user }
then { UE (MCPTT Client) sends a SIP MESSAGE message requesting the call-back and including the
MCPTT ID of the targeted MCPTT user, and, upon receiving a SIP MESSAGE request for private call
call-back response for terminating client with an <mcptt-calling-user-id> element in the
application/vnd.3gpp.mcptt-info+xml MIME body set to an MCPTT-ID matching a "PCCB requesting client
entry" stored on the client then the MCPTT client sets the private call call-back requesting client
state to "PCCB-I3: confirmed" }
}

```

(2)

with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and receive private calls with manual commencement and to request and cancel private call call-back, and, the MCPTT client private call call-back requesting client state equal to "PCCB-I3: confirmed" } ensure that {
 when { the MCPTT User wants to cancel the private call call-back }
 then { UE (MCPTT Client) sends a SIP MESSAGE message cancelling the call-back and including the MCPTT ID of the targeted MCPTT user, **and**, upon receiving a SIP MESSAGE request for private call call-back cancel response for terminating client with an <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body set to an MCPTT-ID matching a "PCCB requesting client entry" stored on the client then the MCPTT client sets the private call call-back requesting client state to "PCCB-I1: no-call-back" }
 }

(3)

with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and receive private calls with manual commencement and to request and cancel private call call-back, and, the MCPTT client private call call-back requesting client state equal to "PCCB-I3: confirmed" } ensure that {
 when { the UE (MCPTT Client) receives a request for private call establishment from the target for a call-back MCPTT User (MCPTT-ID matching a "PCCB requesting client entry") }
 then { UE (MCPTT Client) upon sending a SIP 200 (OK) response to the request for establishment of a private call, sets the private call call-back requesting client state to "PCCB-I1: no-call-back" and shall delete the "PCCB requesting client entry" associated with the target MCPTT user }
 }

6.2.12.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.5.2.1, 11.1.5.2.3. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.5.2.1]

Upon receiving a request from the requesting MCPTT user to send a private call call-back request or to send a private call call-back cancel request, that has been authorised successfully by the requesting MCPTT client, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

The MCPTT client:

- 1) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 2) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 3) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 4) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user;
- 5) shall include in an application/resource-lists+xml MIME body, the MCPTT ID of the targeted MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
- 6) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with the <anyExt> element containing:
 - a) if the request is a private call call-back request:
 - i) the <request-type> set to a value of "private-call-call-back-request";
 - ii) the <urgency-ind> set to a value of "low", "normal" or "high" to indicate the urgency of the call-back request; and

- iii) the <time-of-request> set to the date and time of the request using the format specified in clause F.1.3; and
 - b) if the request is a private call call-back cancel request, the <request-type> set to a value of "private-call-call-back-cancel-request";
- 7) shall store a "PCCB requesting client entry" containing the MCPTT ID of the targeted user and:
- a) if the request is a private call call-back request, shall set the private call call-back requesting client state to "PCCB-I2: confirm-pending"; and
 - b) if the request is a private call call-back cancel request, shall set the private call call-back requesting client state to "PCCB-I4: cancel-pending"; and
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

....

Upon receiving a "SIP MESSAGE request for private call call-back response for terminating client" with an <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body set to an MCPTT-ID matching a "PCCB requesting client entry" stored on the client, if the private call call-back requesting client state is set to "PCCB-I2: confirm-pending", then the MCPTT client shall set the private call call-back requesting client state to "PCCB-I3: confirmed".

Upon receiving a "SIP MESSAGE request for private call call-back cancel response for terminating client" with an <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body set to the an MCPTT-ID matching a "PCCB requesting client entry" entry stored on the client, if the private call call-back requesting client state is set to "PCCB-I4: cancel-pending", then the MCPTT client set the private call call-back requesting client state to "PCCB-I1: no-call-back" and shall delete the "PCCB requesting client entry" associated with the target MCPTT user.

[TS 24.379, clause 11.1.5.2.3]

When the target MCPTT user wants to make a private call call-back, the target MCPTT client shall initiate a private call in manual commencement mode towards the requesting MCPTT client using the MCPTT ID of the requesting MCPTT user as found in the "PCCB target client entry" stored on the UE, by following the procedures in:

...

- 2) subclause 11.1.2.2 for private call without floor control;

Upon sending a SIP 200 (OK) response to the request for establishment of a private call as specified in subclause 11.1.1.2.1.1, subclause 11.1.1.2.2.1 or subclause 11.1.2.2, if the "PCCB requesting client entry" of the target MCPTT user contains a private call call-back requesting client state set to "PCCB-I3: confirmed", then the requesting MCPTT client shall set the private call call-back requesting client state to "PCCB-I1: no-call-back" and shall delete the "PCCB requesting client entry" associated with the target MCPTT user.

6.2.12.3 Test description

6.2.12.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.12.3.2

Test procedure sequence

Table 6.2.12.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) send a private call call-back request for targeted user B. (NOTE 1) | - | - | - | - |
| 2-3B | Check: Does the UE (MCPTT client) correctly perform steps 1a1-5 of procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 requesting a private call call-back providing the MCPTT ID of the targeted MCPTT user? | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) cancel the private call call-back request for targeted user B. (NOTE 1) | - | - | - | - |
| 5-6A | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 to cancel the private call call-back? | - | - | 2 | P |
| 7 | Make the UE (MCPTT client) cancel the private call call-back request for targeted user B. (NOTE 1, NOTE 2) | - | - | - | - |
| 8 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE message cancelling the private call call-back? | --> | SIP MESSAGE | 2 | F |
| - | EXCEPTION: The SS releases the RRC connection. | - | - | - | - |
| 9 | Make the UE (MCPTT client) send a private call call-back request for targeted user B. (NOTE 1) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CO' as described in TS 36.579-1 [2] Table 5.3.30.3-1 requesting a private call call-back providing the MCPTT ID of the targeted MCPTT user? | - | - | 1 | P |
| 10A-11A | Void | - | - | - | - |
| 12 | Wait for 5 sec (randomly chosen value to simulate realistic behaviour at the targeted side). | - | - | - | - |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 to establish an MCX private call (private call call back fulfilment)? | - | - | 3 | P |
| 14-16 | Void | - | - | - | - |
| 17-18 | Steps 1 and 2 of procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 are performed | - | - | - | - |
| 19 | Make the UE (MCPTT client) cancel the private call call-back request for targeted user B. (NOTE 1, NOTE 2) | - | - | - | - |
| 20 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE message cancelling the private call call-back? | --> | SIP MESSAGE | 3 | F |
| - | EXCEPTION: The SS releases the RRC connection. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: Depending on the implementation the User may not be provided with an entry for pending call-back. | | | | | |

6.2.12.3.3 Specific message contents

Table 6.2.12.3.3-1: SIP MESSAGE from the UE (Steps 2, 10, Table 6.2.12.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-2 | | | |

Table 6.2.12.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.2.12.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL | | | | |
|---|----------------------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| request-type | "private-call-call-back-request" | | | |
| urgency-ind | "low", "normal" or "high" | | | |
| time-of-request | "YYYY-MM-DDThh:mm:ss" | set to the date and time of the request | | |

Table 6.2.12.3.3-3: SIP MESSAGE from the SS (Steps 3, 10, Table 6.2.12.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-4 | | | |

Table 6.2.12.3.3-4: MCPTT-Info in SIP MESSAGE (Table 6.2.12.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|-----------------------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "private-call-call-back-response" | | | |

Table 6.2.12.3.3-5: Void

Table 6.2.12.3.3-6: SIP MESSAGE from the UE (Step 5, Table 6.2.12.3.2-1;
step 2, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|---|------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-7 | | | |

Table 6.2.12.3.3-7: MCPTT-Info in SIP MESSAGE (Table 6.2.12.3.3-6)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values – these need not be checked | | |
| request-type | "private-call-call-back-cancel-request" | | | |

Table 6.2.12.3.3-8: SIP MESSAGE from the SS (Step 6, Table 6.2.12.3.2-1;
step 4, TS 36.579-1 [2] Table 5.3.30.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-9 | | | |

Table 6.2.12.3.3-9: MCPTT-Info in SIP MESSAGE (Table 6.2.12.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "private-call-call-back-cancel-response" | | | |

Table 6.2.12.3.3-10: Void**Table 6.2.12.3.3-11: SIP INVITE from the SS (Step 13, Table 6.2.12.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.6.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MANUAL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP-Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.12.3.3-12 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-12B | | | |

Table 6.2.12.3.3-12: SDP Message in SIP INVITE (Table 6.2.12.3.3-11)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER, PRIVATE-CALL, WITHOUT_FLOORCONTROL

Table 6.2.12.3.3-12B: MCPTT-Info in SIP INVITE (Table 6.2.12.3.3-11)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL

Table 6.2.12.3.3-13: SIP 200 (OK) from the UE (Step 13, Table 6.2.12.3.2-1; step 6, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.12.3.3-14 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.12.3.3-14A | | | |

Table 6.2.12.3.3-14: SDP Message in SIP 200 (OK) (Table 6.2.12.3.3-13)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, PRIVATE-CALL, WITHOUT_FLOORCONTROL

Table 6.2.12.3.3-14A: MCPTT-Info in SIP 200 (OK) (Table 6.2.12.3.3-13)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP

Table 6.2.12.3.3-15: Void

6.2.13 On-network / Private Call / Private Call Call-Back Request / Private Call Call-Back Cancel Request / Client Terminated (CT) / Private call call-back fulfilment

6.2.13.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and receive private calls with manual commencement and to request and cancel private call call-back }
ensure that {
when { the UE (MCPTT Client) receives a SIP MESSAGE message request for a private call call-back request for terminating client }
then { UE (MCPTT Client) shall store a "PCCB target client entry" and notify the user of the stored information related to the private call call back request, and, send a SIP MESSAGE message response acknowledging the request, including in an application/resource-lists+xml MIME body, the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and receive private calls with manual commencement and to request and cancel private call call-back, and, the MCPTT client having responded positively to a private call call-back request and set the private call call-back receiving client state set to "PCCB-R2: private-call-pending" }
ensure that {
when { the UE (MCPTT Client) receives a SIP MESSAGE message request for private call call-back cancel request for terminating client where the "PCCB target client entry" associated with the MCPTT ID in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body contains a private call call-back requesting client state set to "PCCB-R2: private-call-pending" }
then { UE (MCPTT Client) the MCPTT client shall set the private call call-back requesting client state to "PCCB-R1: no-call-back" and shall delete the "PCCB target client entry" associated with the requesting MCPTT user and sends a SIP MESSAGE message acknowledging the cancelling of the call-back }
}
```

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service and authorized to initiate and receive private calls with manual commencement and to request and cancel private call call-back, and, the MCPTT client having responded positively to a private call call-back request and set the private call call-back receiving client state set to "PCCB-R2: private-call-pending" }
ensure that {
when { the target MCPTT user wants to make a private call call-back using the MCPTT ID of the requesting MCPTT user as found in the "PCCB target client entry" stored on the UE }
then { UE (MCPTT Client), the target MCPTT client, shall initiate a private call in manual commencement mode towards the requesting MCPTT client, and, upon receiving a SIP 2xx response to the SIP INVITE request for establishment of the private call shall set the private call call-back target client state to "PCCB-R1: no-call-back" and shall delete the "PCCB target client entry" associated with the requesting MCPTT user }
}
```

6.2.13.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.5.2.2, 11.1.5.2.3. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.5.2.2]

Upon receiving a "SIP MESSAGE request for private call call-back request for terminating client", the MCPTT client:

- 1) shall store a "PCCB target client entry" entry with:
 - a) the MCPTT ID set to the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body;
 - b) the private call call-back receiving client state set to "PCCB-I2: private-call-pending";

- c) the urgency set to the value of the <urgency-ind> element in the application/vnd.3gpp.mcptt-info+xml MIME body; and
- d) the time-of-request set to the value of the <time-of-request> element in the application/vnd.3gpp.mcptt-info+xml MIME body; and

2) shall notify the user of the stored information related to the private call call back request.

Upon receiving a "SIP MESSAGE request for private call call-back cancel request for terminating client" where the "PCCB target client entry" associated with the MCPTT ID in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body contains a private call call-back requesting client state set to "PCCB-R2: private-call-pending", the MCPTT client shall set the private call call-back requesting client state to "PCCB-R1: no-call-back" and shall delete the "PCCB target client entry" associated with the requesting MCPTT user.

The MCPTT client:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33];
- 2) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6] in the SIP MESSAGE request
- 4) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 5) shall set the Request-URI in the SIP MESSAGE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;
- 6) shall include in an application/resource-lists+xml MIME body, the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request;
- 7) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with the <anyExt> element containing:
 - a) if the received SIP MESSAGE was a "SIP MESSAGE request for private call call-back request for terminating MCPTT client", the <response-type> element set to a value of "private-call-call-back-response"; and
 - b) if the received SIP MESSAGE was a "SIP MESSAGE request for private call call-back cancel request for terminating MCPTT client", the <response-type> element set to a value of "private-call-call-back-cancel-response"; and
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.5.2.3]

When the target MCPTT user wants to make a private call call-back, the target MCPTT client shall initiate a private call in manual commencement mode towards the requesting MCPTT client using the MCPTT ID of the requesting MCPTT user as found in the "PCCB target client entry" stored on the UE, by following the procedures in:

...

- 2) subclause 11.1.2.2 for private call without floor control;

...

Upon receiving a SIP 2xx response to the SIP INVITE request or SIP REFER request for establishment of the private call, as specified in subclause 11.1.1.2.1.1, subclause 11.1.1.2.2.1 or subclause 11.1.2.2, if the "PCCB target client entry" of the requesting MCPTT user contains a private call call-back target client state set to "PCCB-R2: private-call-pending", then the target MCPTT client shall set the private call call-back target client state to "PCCB-R1: no-call-back" and shall delete the "PCCB target client entry" associated with the requesting MCPTT user.

6.2.13.3 Test description

6.2.13.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.13.3.2

Test procedure sequence

Table 6.2.13.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CT' as described in TS 36.579-1 [2] Table 5.3.31.3-1 requesting a private call call-back providing the MCPTT ID of the UE (MCPTT user) ? | - | - | 1 | P |
| 1A | Check: Does the UE (MCPTT client) provide information related to the private call call back request to the user (mcptt-calling-user-id, call back urgency, time-of-request)? (NOTE 1) | - | - | 1 | P |
| 2-2A | Void | - | - | - | - |
| 3-4B | Check: Does the UE (MCPTT client) correctly perform steps 1a1-5 of procedure 'MCX SIP MESSAGE Request - Accept CT' as described in TS 36.579-1 [2] Table 5.3.31.3-1 cancelling the private call call-back providing the MCPTT ID of the UE (MCPTT user)? | - | - | 2 | P |
| 5 | Make the UE (MCPTT client) cancel the private call call-back request of user B (MCPTT ID as indicated at step 1A). (NOTE 1) (NOTE 2) | - | - | - | - |
| 6 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE message cancelling the private call call-back? | --> | SIP MESSAGE | 2 | F |
| - | EXCEPTION: The SS releases the RRC connection. | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE Request - Accept CT' as described in TS 36.579-1 [2] Table 5.3.31.3-1 requesting a private call call-back providing the MCPTT ID of the UE (MCPTT user)? | - | - | 1 | P |
| 7A | Check: Does the UE (MCPTT client) provide information related to the private call call back request to the user (mcptt-calling-user-id, call back urgency, time-of-request)? (NOTE 1) | - | - | 1 | P |
| 8-8A | Void | - | - | - | - |
| - | EXCEPTION: The SS releases the RRC connection. | - | - | - | - |
| 9 | Make the UE (MCPTT client) request the establishment of a private call-back call to user B (MCPTT ID as indicated at step 7A) without floor control. (NOTE 1) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO private call establishment with manual commencement' as described in TS 36.579.1 [2] Table 5.3.35.3-1 to establish a private call with manual commencement and without floor control? | - | - | 3 | P |
| 11-13 | Void | - | - | - | - |
| 14 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 15-16 | Steps 1 and 2 of procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1 are performed | - | - | - | - |

| | | | | | |
|---|--|-----|-------------|---|---|
| 17 | Make the UE (MCPTT client) cancel the private call call-back request of user B (MCPTT ID as indicated at step 7A). (NOTE 1) (NOTE 2) | - | - | - | - |
| 18 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE message cancelling the private call call-back? | --> | SIP MESSAGE | 3 | F |
| - | EXCEPTION: The SS releases the RRC connection. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: Depending on the implementation the User may not be provided with an entry for pending call-back. | | | | | |

Table 6.2.13.3.2-2: Void

6.2.13.3.3 Specific message contents

Table 6.2.13.3.3-1: SIP MESSAGE from the SS (Steps 1, 7, Table 6.2.13.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.31.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.13.3.3-2 | | | |

Table 6.2.13.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.2.13.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|----------------------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| request-type | "private-call-call-back-request" | | | |
| urgency-ind | "normal" | | | |
| time-of-request | "YYYY-MM-DDThh:mm:ss" | set to the date and time of the request | | |

Table 6.2.13.3.3-3: SIP MESSAGE from the UE (Steps 1, 7, Table 6.2.13.3.2-1; step 4, TS 36.579-1 [2], Table 5.3.31.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|---|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.13.3.3-4 | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.13.3.3-5 | | | |

Table 6.2.13.3.3-4: MCPTT-Info in SIP MESSAGE (Table 6.2.13.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL | | | | |
|---|-----------------------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "private-call-call-back-response" | | | |

Table 6.2.13.3.3-5: Resource-lists in SIP MESSAGE (Table 6.2.13.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.2-1 | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| resource-lists | | | | |
| list[1] | | | | |
| entry[1] | | | | |
| uri attribute | MCPTT ID as contained in the <mcptt-calling-user-id> element of the MCPTT-Info sent in the SIP MESSAGE from the SS at steps 1, 7 | | | |

Table 6.2.13.3.3-6: SIP MESSAGE from the SS (Step 3, Table 6.2.13.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.31.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.13.3.3-7 | | | |

Table 6.2.13.3.3-7: MCPTT-Info in SIP MESSAGE (Table 6.2.13.3.3-6)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| request-type | "private-call-call-back-cancel-request" | | | |

Table 6.2.13.3.3-8: SIP MESSAGE from the UE (Step 3, Table 6.2.13.3.2-1; step 4, TS 36.579-1 [2], Table 5.3.31.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition RESOURCE_LISTS | | | | |
|---|--|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.13.3.3-9 | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.13.3.3-10 | | | |

Table 6.2.13.3.3-9: MCPTT-Info in SIP MESSAGE (Table 6.2.13.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "private-call-call-back-cancel-response" | | | |

Table 6.2.13.3.3-10: Resource-lists in SIP MESSAGE (Table 6.2.13.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.2-1 | | | | |
|---|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| resource-lists | | | | |
| list[1] | | | | |
| entry[1] | | | | |
| uri attribute | MCPTT ID as contained in the <mcptt-calling-user-id> element of the MCPTT-Info sent in the SIP MESSAGE from the SS at step 3 | | | |

Table 6.2.13.3.3-11: SIP INVITE from the UE (Step 10, Table 6.2.13.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL, MANUAL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP-Message | | |
| MIME-part-body | SDP-Message as described in Table 6.2.13.3.3-12 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.13.3.3-12A | | | |

Table 6.2.13.3.3-12: SDP Message in SIP INVITE (Table 6.2.13.3.3-11)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|

Table 6.2.13.3.3-12A: MCPTT-Info in SIP INVITE (Table 6.2.13.3.3-11)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFER, PRIVATE-CALL |
|---|

Table 6.2.13.3.3-13: SIP 200 (OK) from the SS (Step 10, Table 6.2.13.3.2-1; step 5, TS 36.579-1 [2], Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|-------------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.13.3.3-14 | | | |

Table 6.2.13.3.3-14: SDP Message in SIP 200 (OK) (Table 6.2.13.3.3-13)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITHOUT_FLOORCONTROL |
|---|

Table 6.2.13.3.3-15: Void

6.2.14 On-network / Private Call / Ambient listening call / Remotely initiated Ambient listening call / Remotely initiated ambient listening call release / Success / Client Originated (CO) / Server initiated ambient call release

6.2.14.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate Remotely initiated ambient listening }
ensure that {
when { UE (MCPTT User) requests the establishment of a remotely initiated ambient listening call }
then { UE (MCPTT Client) sends a SIP INVITE message (end-to-end security context provided)
requesting the establishment of a remotely initiated ambient listening call, and, after indication
from the MCPTT Server that the call was established notifies the MCPTT user, and does not do any
floor request }
}

```

(2)

```

with { UE (MCPTT Client) having initiated a remotely initiated ambient listening call, and, having
been notified by the server that the MCPTT server is capable of receiving a SIP BYE from an MCPTT
client to release an ambient-listening call }
ensure that {
when { UE (MCPTT User) wants to release the MCPTT remotely initiated ambient listening call }
then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) terminates
the call }
}

```

(3)

```

with { UE (MCPTT Client) having initiated a remotely initiated ambient listening call }
ensure that {
when { UE (MCPTT client) receives a SIP BYE message including a <release-reason> element set to
"administrator-action" }
then { UE (MCPTT Client) sends a SIP 200 (OK) response and terminates the call }
}

```

}

6.2.14.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.1.1, 11.1.6.2.1.3, 11.1.6.2.1.4, 6.2.1, 6.4, F.1.3. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.6.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT ambient listening call that has been authorised successfully by the requesting MCPTT client, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- 2) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 7) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <session-type> element set to a value of "ambient-listening";
- 8) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body an <ambient-listening-type> element set to a value of:
 - ...
 - b) "remote-init", if the MCPTT user has requested a remotely initiated ambient listening call;
- 9) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the targeted MCPTT user, according to rules and procedures of IETF RFC 5366 [20];

NOTE 1: the targeted MCPTT user is the listened-to MCPTT user in the case of a remotely initiated ambient listening call or the listening MCPTT user in the case of a locally initiated listening call.

10) if an end-to-end security context needs to be established then:

- a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
- b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
- c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the invited user and a time related parameter as described in 3GPP TS 33.180 [78];

- e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- f) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and
- g) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

11) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;

...

13) if this is a remotely initiated ambient listening call, shall comply with the conditions for an implicit request to grant the floor to the terminating MCPTT client as specified in subclause 6.4;

14) shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

15) shall send the SIP INVITE request towards the participating MCPTT function according to 3GPP TS 24.229 [4].

...

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) if this is a remotely initiated ambient listening call, shall notify the user that the call has been successfully established;

[TS 24.379, clause 11.1.6.2.1.3]

Upon receiving a request from an MCPTT user to release an MCPTT ambient listening call:

The MCPTT client:

...

- 2) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 3) shall generate a SIP BYE request according to rules and procedures of 3GPP TS 24.229 [4] and IETF RFC 6086 [64]; and
- 4) shall send the SIP BYE request within the dialog of the MCPTT ambient call session as specified in 3GPP TS 24.229 [4].

Upon receipt of the SIP 200 (OK) response to the SIP BYE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

[TS 24.379, clause 11.1.6.2.1.4]

Upon receipt of a SIP BYE request in the dialog of an ambient listening session, the MCPTT client:

- 1) shall comply with the procedures of subclause 6.2.6;

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

...

2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

...

c) if the SDP offer is for an ambient listening call:

i) if this is a remotely initiated ambient listening call, include an "a=recvonly" attribute; or

[TS 24.379, clause 6.4]

An initial SIP INVITE request fulfilling the following criteria shall be regarded by the MCPTT server as an implicit request to grant the floor to the terminating MCPTT client when the originating MCPTT client:

1) initiates a remotely initiated MCPTT ambient listening call; and

2) includes the "mc_implicit_request" 'fmtpt' attribute in the associated UDP stream for the floor control in the SDP offer/answer as specified in 3GPP TS 24.380 [5] clause 12.

[TS 24.379, clause F.1.3]

If the <mcpttinfo> contains the <mcptt-Params> element then:

...

2) the <session-type> can be included with:

...

e) a value of "ambient-listening" to indicate the MCPTT client wants to make an ambient listening call;

...

19) the <anyExt> can be included with the following elements not declared in the XML schema:

a) an <ambient-listening-type> of type "xs:string":

i) set to a value of "remote-init" when the listening MCPTT user of an ambient listening call initiates the call; or

6.2.14.3 Test description

6.2.14.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

- The MCPTT user is authorized to initiate remotely initiated ambient listening: the <allow-request-remote-initiated-ambient-listening> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true"
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.14.3.2 Test procedure sequence

Table 6.2.14.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a remotely initiated ambient listening call to user B. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a remotely initiated ambient listening call without implicit floor control according to option a of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3 | Void | - | - | - | - |
| 4 | The SS (MCPTT server) sends a Floor Taken message with the Permission to Request the Floor field set to '0'. | <-- | Floor Taken | - | - |
| 5 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been established? (NOTE 1) | - | - | 1 | P |
| 6 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 6A | Check: Does the UE (MCPTT client) send a Floor Request message in the next 5 sec? | --> | Floor Request | 1 | F |
| 7 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 2 | P |
| 9-10 | Void | - | - | - | - |
| 11 | Make the UE (MCPTT client) request the establishment of a remotely initiated ambient listening call to user B. (NOTE 1) | - | - | - | - |
| 12 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a remotely initiated ambient listening call without implicit floor control according to option a of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 13 | Void | - | - | - | - |
| 14 | The SS (MCPTT server) sends a Floor Taken message with the Permission to Request the Floor field set to '0'. | <-- | Floor Taken | - | - |
| 15 | Void | - | - | - | - |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 3 | P |
| 17-18 | Void | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.2.14.3.3 Specific message contents

Table 6.2.14.3.3-1: SIP INVITE from the UE (Steps 2, 12, Table 6.2.14.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.14.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.14.3.3-2 | | | |

Table 6.2.14.3.3-2: MCPTT-Info in SIP INVITE (Table 6.2.14.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL, INVITE_REFER | | | | |
|---|---------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | | | |
| ambient-listening-type | "remote-init" | The anyExt field may contain other values - these need not be checked | | |

Table 6.2.14.3.3-3: SDP Message in SIP INVITE (Table 6.2.14.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER | | | | |
|--|--------------|------------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=recvonly | | |
| recvonly | | | | |

Table 6.2.14.3.3-4: SIP 200 (OK) from the SS (Steps 2, 12, Table 6.2.14.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Feature-Caps | | | | |
| fcap-name | "g.3gpp.mcptt.ambient-listening-call-release" | Indicates that the MCPTT server is capable of receiving a SIP BYE from an MCPTT client to release an ambient-listening call | | |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.2.14.3.3-4A | | | |

Table 6.2.14.3.3-4A: SDP Message in SIP 200 OK (Table 6.2.14.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER | | | | |
|---|--------------|------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=sendonly | | |
| sendonly | | | | |

Table 6.2.14.3.3-5: Floor Taken (Steps 4, 14, Table 6.2.14.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 | | | |
|---|--------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Permission to Request the Floor | | | |
| Permission to Request the Floor | "0" | The receiver is NOT permitted to request floor | |

Table 6.2.14.3.3-6: Void

Table 6.2.14.3.3-7: SIP BYE from the SS (Step 16, Table 6.2.14.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "multipart/mixed" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| Content-ID | Unique id in format of a Message-ID assigned by the SS | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.14.3.3-8 | | | |
| MIME body part | | Signature | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-signed+xml" | | | |
| MIME-part-body | Signatures for XML MIME bodies as described in TS 36.579-1 [2] Table 5.5.13.1-2 | | | |

Table 6.2.14.3.3-8: MCPTT-Info in SIP BYE (Table 6.2.14.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| release-reason | "administrator-action" | | | |

6.2.15 On-network / Private Call / Ambient listening call / Remotely initiated Ambient listening call / Remotely initiated ambient listening call release / Success / Client Terminated (CT)

6.2.15.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private calls }
ensure that {
when { the UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated
ambient listening call the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute
field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE }
then { UE (MCPTT Client) sends a SIP 200 (OK) accepting the establishment of the MCPTT remotely
initiated ambient listening call applying End-to-end communication security, and, does not notify
the user for the call establishment }
}
```

(2)

```
with { UE (MCPTT Client) having accepted a remotely initiated ambient listening call }
ensure that {
when { the UE (MCPTT Client) receives a SIP BYE request for release of the MCPTT remotely
initiated ambient listening call }
then { UE (MCPTT Client) sends a SIP 200 (OK) response and terminates the call, and, does not
notify the user for the call release }
}
```

6.2.15.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.1.2, 11.1.6.2.1.4, 6.2.3.1.1, 6.2.6. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.6.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 1: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

...

6) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.1;

...

8) if the received SIP INVITE request includes an alert-info header field as specified in IETF RFC 3261 [24] and as updated by IETF RFC 7462 [77] set to a value of "<file:///dev/null>" shall not give any indication of the progress of the call to the MCPTT user;

NOTE 3: The alert-info header field having the value of "<file:///dev/null>" is intended to result in having a "null" alert, i.e. an alert with no content or physical manifestation of any kind.

[TS 24.379, clause 11.1.6.2.1.4]

Upon receipt of a SIP BYE request in the dialog of an ambient listening session, the MCPTT client:

- 1) shall comply with the procedures of subclause 6.2.6;
- 2) if the cached ambient listening client role is equal to "listened-to MCPTT user", shall provide no indication that an ambient listening call has been terminated;

[TS 24.379, clause 6.2.3.1.1]

When performing the automatic commencement mode procedures, the MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- ...
- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

6.2.15.3 Test description

6.2.15.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4.

The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.15.3.2 Test procedure sequence

Table 6.2.15.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3.4.3-1 to establish a remotely initiated ambient listening call? | - | - | 1 | P |
| 2 | Void | - | - | - | - |
| 3 | The SS (MCPTT server) sends a Floor Granted message | <-- | Floor Granted | - | - |
| 4 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been established? (NOTE 1) | - | - | 1 | F |
| 5 | Void | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 7 | Void | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been released? (NOTE 1) | - | - | 2 | F |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.2.15.3.3 Specific message contents

Table 6.2.15.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.15.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Alert-Info | | | | |
| value | "<file:///dev/null>" | | | |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.15.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.15.3.3-2 | | | |

Table 6.2.15.3.3-2: MCPTT-Info in SIP INVITE (Table 6.2.15.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | | | |
| ambient-listening-type | "remote-init" | | | |

Table 6.2.15.3.3-3: SDP Message in SIP INVITE (Table 6.2.15.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER | | | | |
|--|--------------|------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=recvonly | | |
| recvonly | | | | |

Table 6.2.15.3.3-3A: SIP 200 (OK) from the UE (Step 2, Table 6.2.15.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.15.3.3-3B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.15.3.3-3C | | | |

Table 6.2.15.3.3-3B: SDP Message in SIP 200 OK (Table 6.2.15.3.3-3A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER | | | | |
|---|--------------|-----------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=sendonly | | |
| sendonly | | | | |

Table 6.2.15.3.3-3C: MCPTT-Info in SIP 200 (OK) (Table 6.2.15.3.3-3A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|
|---|

Table 6.2.15.3.3-4..5: Void

6.2.16 On-network / Private Call / Ambient listening call / Locally initiated Ambient listening call / Locally initiated ambient listening call release / Success / Client Originated (CO) / Server initiated ambient call release

6.2.16.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate Locally initiated ambient listening }
ensure that {
when { the MCPTT User requests the establishment of a MCPTT Locally initiated ambient listening call
}
then { UE (MCPTT Client) sends a SIP INVITE message requesting the establishment of a locally
initiated ambient listening call, and, upon indication from the MCPTT Server for the call progress
and that the call was established does not notify the user }
}
```

(2)

```
with { UE (MCPTT Client) having initiated a locally initiated ambient listening call, and, having
been notified by the server that the MCPTT server is capable of receiving a SIP BYE from an MCPTT
client to release an ambient-listening call }
ensure that {
when { the MCPTT User wants to release the MCPTT locally initiated ambient listening call }
then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) terminates
the call }
}
```

(3)

```
with { UE (MCPTT Client) having initiated a locally initiated ambient listening call }
ensure that {
when { the UE (MCPTT client) receives a SIP BYE message including a <release-reason> element set
to "administrator-action" }
then { UE (MCPTT Client) sends a SIP 200 (OK) response and terminates the call }
}
```

6.2.16.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.1.1, 11.1.6.2.1.3, 11.1.6.2.1.4, 6.2.1, 6.2.4.2.2, 6.4, F.1.3, TS 24.380, clause 12.1.2.2. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.6.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT ambient listening call that has been authorised successfully by the requesting MCPTT client, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- 2) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 3) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 4) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 6) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 7) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <session-type> element set to a value of "ambient-listening";
- 8) shall include in the application/vnd.3gpp.mcptt-info+xml MIME body an <ambient-listening-type> element set to a value of:
 - a) "local-init", if the MCPTT user has requested a locally initiated ambient listening call; or
 - ...
- 9) shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the targeted MCPTT user, according to rules and procedures of IETF RFC 5366 [20];

NOTE 1: the targeted MCPTT user is the listened-to MCPTT user in the case of a remotely initiated ambient listening call or the listening MCPTT user in the case of a locally initiated listening call.

10) if an end-to-end security context needs to be established then:

- a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
- b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
- c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the invited user and a time related parameter as described in 3GPP TS 33.180 [78];
- e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- f) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and

- g) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

11) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;

12) if this is a locally initiated ambient listening call, shall comply with the conditions for implicit floor control as specified in subclause 6.4;

...

14) shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

15) shall send the SIP INVITE request towards the participating MCPTT function according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

- 1) if the SIP 183(Session Progress) response includes an alert-info header field as specified in IETF RFC 3261 [24] and as updated by IETF RFC 7462 [77] set to a value of "<D:\dev\nullC:\dev\nullfile:///dev/null>" shall not give any indication of the progress of the call setup to the MCPTT user; and

NOTE 2: The alert-info header field having the value of "<D:\dev\nullC:\dev\nullfile:///dev/null>" is intended to result in having a "null" alert, i.e. an alert with no content or physical manifestation of any kind.

...

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

...

- 3) if this is a locally initiated ambient listening call, shall not provide any indication to the user that the call has been successfully established;

[TS 24.379, clause 11.1.6.2.1.3]

Upon receiving a request from an MCPTT user to release an MCPTT ambient listening call:

The MCPTT client:

...

- 2) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 3) shall generate a SIP BYE request according to rules and procedures of 3GPP TS 24.229 [4] and IETF RFC 6086 [64]; and
- 4) shall send the SIP BYE request within the dialog of the MCPTT ambient call session as specified in 3GPP TS 24.229 [4].

Upon receipt of the SIP 200 (OK) response to the SIP BYE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];

...

- 3) if the cached ambient listening client role is equal to "listening MCPTT user", may provide an indication to the MCPTT user that the ambient listening call has been terminated; and

[TS 24.379, clause 11.1.6.2.1.4]

Upon receipt of a SIP BYE request in the dialog of an ambient listening session, the MCPTT client:

- 1) shall comply with the procedures of subclause 6.2.6;

...

- 3) if the cached ambient listening client role is equal to "listening MCPTT user", may provide an indication to the MCPTT user that the ambient listening call has been terminated; and

[TS 24.379, clause 6.2.1]

The SDP offer shall contain only one SDP media-level section for MCPTT speech according to 3GPP TS 24.229 [4] and, if floor control shall be used during the session, shall contain one SDP media-level section for a media-floor control entity according to 3GPP TS 24.380 [5].

When composing an SDP offer according to 3GPP TS 24.229 [4] the MCPTT client:

...

- 2) shall include an "m=audio" media-level section for the MCPTT media stream consisting of:

...

- c) if the SDP offer is for an ambient listening call:

...

- ii) if this is a locally initiated ambient listening call, include an "a=sendonly" attribute; and

[TS 24.379, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';

...

4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and

[TS 24.379, clause 6.4]

An initial SIP INVITE request fulfilling the following criteria shall be regarded by the MCPTT server as an implicit floor request by the originating MCPTT client when the MCPTT client:

- 1) initiates an MCPTT speech session or initiates a pre-established session that is not used for a remotely initiated MCPTT ambient listening call; and
- 2) includes the "mc_implicit_request" 'fmtmp' attribute in the associated UDP stream for the floor control in the SDP offer/answer as specified in 3GPP TS 24.380 [5] clause 12.

[TS 24.380, clause 12.1.2.2]

In an SDP offer, the "mc_granted" fmtmp attribute parameter indicates that the offeror supports the procedure where the answerer indicates, using the fmtmp attribute in the associated SDP answer, that the floor has been granted to the offeror.

NOTE 2: When the "mc_granted" fmtmp attribute is used in an SDP offer, it does not indicate an actual request for the floor. The SDP "mc_implicit_request" fmtmp attribute can be used to request the floor. In an SDP answer, the attribute indicates that the floor has been granted to the offeror.

NOTE 3: Once the offeror has been granted the floor, the offeror has the floor until it receives a Floor Revoke message, or until the offeror itself releases the floor by sending a Floor Release message, as described in the present specification.

In an SDP offer, the "mc_implicit_request" fmtmp attribute indicates that the offeror implicitly requests the floor (without the need to send a Floor Request message). In an SDP answer, the attribute parameter indicates that the answerer has accepted the implicit floor request. Once the answerer grants the floor to the offeror, the answerer will send a Floor Granted message.

NOTE 4: The usage of the "mc_implicit_request" fmp attribute in an SDP answer does not mean that the answerer has granted the floor to the offeror, only that the answerer has accepted the implicit floor request.

[TS 24.379, clause F.1.3]

If the <mcpttinfo> contains the <mcptt-Params> element then:

...

2) the <session-type> can be included with:

...

e) a value of "ambient-listening" to indicate the MCPTT client wants to make an ambient listening call;

...

19) the <anyExt> can be included with the following elements not declared in the XML schema:

a) an <ambient-listening-type> of type "xs:string":

...

ii) set to a value of "local-init" when the listened-to MCPTT user of an ambient listening call initiates the call; and

6.2.16.3 Test description

6.2.16.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The MCPTT User is authorized to initiate locally initiated ambient listening call: the <allow-request-locally-initiated-ambient-listening> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true"
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.16.3.2 Test procedure sequence

Table 6.2.16.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a locally initiated ambient listening call to user B. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a locally initiated ambient listening call with implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 3-6 | Void | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) notify the user that the locally initiated ambient listening call has been established? (NOTE 1) | - | - | 1 | F |
| 8 | Void | - | - | - | - |
| 9 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 9A | Void | - | - | - | - |
| 10 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1 ? | - | - | 2 | P |
| 11-12 | Void | - | - | - | - |
| 13 | Make the UE (MCPTT client) request the establishment of a locally initiated ambient listening call to user B. (NOTE 1) | - | - | - | - |
| 14 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a locally initiated ambient listening call with implicit floor control according to option b.i of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | P |
| 15-18 | Void | - | - | - | - |
| 19 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | - | - |
| 20-21 | Void | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: Void | | | | | |

6.2.16.3.3 Specific message contents

Table 6.2.16.3.3-1: SIP INVITE from the UE (Steps 2, 14, Table 6.2.16.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.16.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.16.3.3-2 | | | |

Table 6.2.16.3.3-2: MCPTT-Info in SIP INVITE (Table 6.2.16.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL, INVITE_RFEER | | | | |
|---|---------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| ambient-listening-type | "local-init" | | | |

Table 6.2.16.3.3-3: SDP Message in SIP INVITE (Table 6.2.16.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED | | | | |
|--|--------------|-----------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=sendonly | | |
| sendonly | | | | |

Table 6.2.16.3.3-4: SIP 200 (OK) from the SS (Steps 2, 14, Table 6.2.16.3.2-1; Step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Feature-Caps | | | | |
| fcap-name | "g.3gpp.mcptt.ambient-listening-call-release" | Indicates that the MCPTT server is capable of receiving a SIP BYE from an MCPTT client to release an ambient-listening call | | |
| Message-body | | | | |
| SDP Message | As described in Table 6.2.16.3.3-4A | | | |

Table 6.2.16.3.3-4A: SDP in SIP 200 (OK) (Table 6.2.16.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED, IMPLICIT_FLOOR_GRANTED | | | | |
|---|--------------|-----------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=recvonly | | |
| recvonly | | | | |

Table 6.2.16.3.3-5..6: Void

Table 6.2.16.3.3-7: SIP BYE from the SS (Step 19, Table 6.2.16.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "multipart/mixed" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| Content-ID | Unique id in format of a Message-ID assigned by the SS | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.16.3.3-8 | | | |
| MIME body part | | Signature | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-signed+xml" | | | |
| MIME-part-body | Signatures for XML MIME bodies as described in TS 36.579-1 [2] Table 5.5.13.1-2 | | | |

Table 6.2.16.3.3-8: MCPTT-Info in SIP BYE (Table 6.2.16.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| release-reason | "administrator-action" | | | |

6.2.17 On-network / Private Call / Ambient listening call / Locally initiated Ambient listening call / Locally initiated ambient listening call release / Success / Client Terminated (CT)

6.2.17.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private calls }

```

ensure that {
when { the UE (MCPTT Client) receives a request for establishment of an MCPTT locally initiated
ambient listening call the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute
field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE }
  then { UE (MCPTT Client) sends a SIP 200 (OK) accepting the establishment of the MCPTT locally
initiated ambient listening call applying End-to-end communication security and does not do any
floor request }
}

```

(2)

```

with { UE (MCPTT Client) having accepted a locally initiated ambient listening call }
ensure that {
  when { the UE (MCPTT Client) receives a SIP BYE request for release of the MCPTT locally initiated
ambient listening call }
    then { UE (MCPTT Client) sends a SIP 200 (OK) response and terminates the call }
}

```

6.2.17.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.1.2, 11.1.6.2.1.4, 6.2.3.1.1, 6.2.6. Unless otherwise stated these are Rel-14 requirements.

[TS 24.379, clause 11.1.6.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 1: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

...

- 6) shall perform the automatic commencement procedures specified in subclause 6.2.3.1.1;

[TS 24.379, clause 11.1.6.2.1.4]

Upon receipt of a SIP BYE request in the dialog of an ambient listening session, the MCPTT client:

- 1) shall comply with the procedures of subclause 6.2.6;

[TS 24.379, clause 6.2.3.1.1]

When performing the automatic commencement mode procedures, the MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- ...
- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

[TS 24.379, clause 6.2.4.2.3]

When an MCPTT call is established, the terminating floor participant:

1. shall create an instance of a 'Floor participant state transition diagram for basic operation'; and
2. shall enter the 'U: has no permission' state.

NOTE: From a floor participant perspective the MCPTT call is established when the application and signalling plane sends the SIP 200 (OK) response.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

6.2.17.3 Test description

6.2.17.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

- UE States at the end of the preamble
- The UE is in E-UTRA Registered, Idle Mode state.
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.17.3.2 Test procedure sequence

Table 6.2.17.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] table 5.3.4.3-1 to establish a locally initiated ambient listening call? | - | - | 1 | P |
| 2 | Void. | - | - | - | - |
| 3 | The SS (MCPTT server) sends a Floor Taken message with the Permission to Request the Floor field set to '0'. (NOTE 1) | <-- | Floor Taken | - | - |
| 3A | Check: Does the UE (MCPTT client) notify the user that the locally initiated ambient listening call has been established? (NOTE 2) | - | - | 1 | P |
| 4 | Make the UE (MCPTT client) request the floor. (NOTE 2) | - | - | - | - |
| 4A | Check: Does the UE (MCPTT client) send a Floor Request message in the next 5 sec? | --> | Floor Request | 1 | F |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 6-7 | Void | - | - | - | - |
| NOTE 1: The test scenario simulates the floor being given to the originating Client. The floor control server informs all other Clients (including the UE (MCPTT client)) that the floor is taken. | | | | | |
| NOTE 2: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.17.3.3 Specific message contents

Table 6.2.17.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.17.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | not present | | | |
| Priv-Answer-Mode | | | | |
| answer-mode-value | "Auto" | | | |
| answer-mode-param | "require" | | | |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.17.3.3-3 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.17.3.3-2 | | | |

Table 6.2.17.3.3-2: MCPTT-Info in SIP INVITE (Table 6.2.17.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL, | | | | |
|--|---------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | | | |
| ambient-listening-type | "local-init" | | | |

Table 6.2.17.3.3-3: SDP Message in SIP INVITE (Table 6.2.17.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER | | | | |
|--|--------------|------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=sendonly | | |
| sendonly | | | | |

Table 6.2.17.3.3-3A: SIP 200 (OK) from the UE (Step 2, Table 6.2.17.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.17.3.3-3B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.17.3.3-3C | | | |

Table 6.2.17.3.3-3B: SDP Message in SIP 200 OK (Table 6.2.17.3.3-3A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER | | | | |
|---|--------------|------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=recvonly | | |
| recvonly | | | | |

Table 6.2.17.3.3-3C: MCPTT-Info in SIP 200 (OK) (Table 6.2.17.3.3-3A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.17.3.3-4: Floor Taken (Step 3, Table 6.2.17.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-7 | | | | |
|---|--------------|--|-----------|--|
| Information Element | Value/remark | Comment | Condition | |
| Permission to Request the Floor | | | | |
| Permission to Request the Floor | "0" | The receiver is NOT permitted to request floor | | |

Table 6.2.17.3.3-5: Void

6.2.18 On-network / Private call / Ambient listening call / Remote initiated ambient listening call / Pre-established session / Ambient listening call release / Client Originated (CO)

6.2.18.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate remotely initiated ambient listening, and having established a pre-established session }
ensure that {
when { UE (MCPTT User) requests the establishment of a remotely initiated ambient listening call
within a pre-established session}
then { UE (MCPTT Client) sends a SIP REFER message requesting the establishment of a remotely
initiated ambient listening call within a pre-established session, and, after indication from the
MCPTT Server that the call was established notifies the MCPTT user }
}
```

(2)

```
with { UE (MCPTT Client) having initiated a remotely initiated ambient listening call within a pre-
established session }
ensure that {
when { MCPTT User requests to release the MCPTT remotely initiated ambient listening call and keep
the pre-established session }
then { UE (MCPTT Client) sends a SIP REFER message with method "BYE" to release the MCPTT
session and keep the pre-established session }
}
```

6.2.18.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.2.1, 11.1.6.2.2.3, 6.2.5.2, TS 24.380 clause 9.2.2.3.2. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.6.2.2.1]

Upon receiving a request from the MCPTT user to originate a remote initiated ambient listening call, if the <allow-request-remote-initiated-ambient-listening> element of the <ruleset> element is not present in the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false", the MCPTT client shall inform the MCPTT user and shall exit this procedure.

Upon receiving a request from the MCPTT user to originate a locally initiated ambient listening call, if the <allow-request-locally-initiated-ambient-listening> element of the <ruleset> element is not present in the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false", the MCPTT client shall inform the MCPTT user and shall exit this procedure.

Upon receiving a request from an MCPTT user to establish an MCPTT ambient listening call that has been authorised successfully by the requesting MCPTT client within a pre-established session, the MCPTT client shall generate a SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], with the clarifications given below.

If an end-to-end security context needs to be established the MCPTT client:

- 1) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
- 2) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];

- 3) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- 4) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [78];
- 5) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- 6) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and
- 7) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78].

The MCPTT client populates the SIP REFER request as follows:

- 1) shall include the Request-URI set to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 2) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 3) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 4) shall include the option tag "multiple-refer" in the Require header field;
- 5) may include a P-Preferred-Identity header field in the SIP REFER request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 6) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];
- 7) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL;
- 8) shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to the MCPTT ID of the targeted user, extended with hname "body" parameter containing:
 - a) an application/vnd.3gpp.mcptt-info MIME body containing:
 - i) a <session-type> element set to "ambient-listening";
 - ii) if the MCPTT user has requested a locally initiated ambient listening call, an <ambient-listening-type> element set to a value of "local-init"; or
 - iii) if the MCPTT user has requested a remotely initiated ambient listening call, an <ambient-listening-type> element set to a value of "remote-init";
 - b) a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];
 - c) if the SDP parameters of the pre-established session do not contain a media-level section of a media-floor control entity or if end-to-end security is required for the ambient listening call, an application/sdp MIME body containing the SDP parameters of the pre-established session according to 3GPP TS 24.229 [4] with the clarification given in clause 6.2.1;
 - d) if this is a locally initiated ambient listening call, shall comply with the conditions for implicit floor control as specified in clause 6.4;

- e) if this is a remotely initiated ambient listening call, shall comply with the conditions for an implicit request to grant the floor to the terminating MCPTT client as specified in clause 6.4; and
- f) if implicit floor control is to be requested per clause 6.4, then:
 - i) the application/sdp MIME body shall contain an implicit floor request as specified in clause 6.4; and
 - ii) if the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true", then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element; and
- 9) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session.

The MCPTT client shall send the SIP REFER request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a final SIP 2xx response to the SIP REFER request the MCPTT client:

- 1) shall interact with media plane as specified in 3GPP TS 24.380 [5]; and
- 2) if this is a locally initiated ambient listening call, shall not provide any indication to the user that the call setup is in progress.

On call establishment by interaction with the media plane as specified in clause 9.2.2 of 3GPP TS 24.380 [5] if the sent SIP REFER request the MCPTT client:

- 1) if the MCPTT user has requested a locally initiated ambient listening call shall provide no indication to the MCPTT user that the ambient listening call has been successfully established; and
- 2) if the MCPTT user has requested a remotely initiated ambient listening call shall provide an indication to the MCPTT user that the ambient listening call has been successfully established.
- 3) if the <ambient-listening-type> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body in the sent SIP REFER request was set to a value of "local-init":
 - a) shall cache the value of "listened-to MCPTT user" as the ambient listening client role for this call; or
 - b) if the <ambient-listening-type> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body was set to a value of "remote-init" shall cache the value of "listening MCPTT user" as the ambient listening client role for this call; and
- 4) shall cache the value contained in the <ambient-listening-type> element of the application/vnd.3gpp.mcptt-info+xml MIME body set in step 8) as the ambient listening type of this call.

[TS 24.379, clause 11.1.6.2.2.3]

Upon receiving a request from an MCPTT user to release an MCPTT ambient listening call when using a pre-established MCPTT session:

The MCPTT client:

- 1) if the MCPTT client has not received a g.3gpp.mcptt.ambient-listening-call-release feature-capability indicator as described in clause D.3 in the Feature-Caps header field according to IETF RFC 6809 [60] in:
 - a) a received SIP INVITE request for the ambient listening call; or
 - b) a received SIP 200 (OK) response to a sent SIP INVITE request or SIP REFER request for the ambient listening call;then shall skip the rest of the steps; and
- 2) shall perform the actions specified in clause 6.2.5.2.

If the procedures of clause 6.2.5.2 were successful:

- 1) if the cached ambient listening client role is equal to "listened-to MCPTT user", shall provide no indication that an ambient listening call has been terminated;
- 2) if the cached ambient listening client role is equal to "listening MCPTT user", may provide an indication to the MCPTT user that the ambient listening call has been terminated; and
- 3) shall clear the cache of the data stored as:
 - a) ambient listening client role; and
 - b) ambient listening type.

[TS 24.379, clause 6.2.5.2]

When the MCPTT client wants to release an MCPTT session using a pre-established session, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate an initial SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27];
- 3) shall set the Request-URI of the SIP REFER request to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 4) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 5) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 6) shall set the Refer-To header field of the SIP REFER request to the MCPTT session identity to release;
- 7) shall include the "method" SIP URI parameter with the value "BYE" in the URI in the Refer-To header field;
- 8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
- 9) shall send the SIP REFER request according to 3GPP TS 24.229 [4].

Upon receiving a SIP 2xx response to the SIP REFER request, the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

[TS 24.380, clause 9.2.2.4.2]

Upon reception of a Connect message the MCPTT client:

1. if the first bit in the subtype of the Connect message is set to '1' (acknowledgement is required), shall send Acknowledgement message with the Reason Code field set to 'Accepted'; and
2. shall remain in the 'U: Pre-established session in use' state.

6.2.18.3 Test description

6.2.18.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- The MCPTT User is authorized to initiate remotely initiated ambient listening: the <allow-request-remote-initiated-ambient-listening> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true"
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.18.3.2 Test procedure sequence

Table 6.2.18.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a remotely initiated ambient listening call to user B using the pre-established session. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish a remotely initiated ambient listening call? | - | - | 1 | P |
| 3 | The SS (MCPTT server) sends a Floor Taken message with the Permission to Request the Floor field set to '0'. | <-- | Floor Taken | - | - |
| 4 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been established? (NOTE 1) | - | - | 1 | P |
| 5 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 6 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] Table 5.3A.4.3-1? | - | - | 2 | P |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.2.18.3.3 Specific message contents

Table 6.2.18.3.3-1: SIP REFER from the UE (Step 2, Table 6.2.18.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition PRIVATE-CALL | | | | |
|--|--|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.18.3.3-1A | | | |

Table 6.2.18.3.3-2: Resource-lists in SIP REFER (Table 6.2.18.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH, PRIVATE-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.2.18.3.3-3 | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.18.3.3-3: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.2.18.3.3-2)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition PRIVATE-CALL | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.18.3.3-5 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.18.3.3-4 | | | |

Table 6.2.18.3.3-4: MCPTT-Info in SIP REFER (Table 6.2.18.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL, INVITE_REFER | | | | |
|---|---------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | | | |
| ambient-listening-type | "remote-init" | The anyExt field may contain other values - these need not be checked | | |

Table 6.2.18.3.3-4A: SDP Message in SIP REFER (Table 6.2.18.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRIVATE-CALL, PRE_ESTABLISHED_SESSION | | | | |
|---|--------------|---|----------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a= line attribute = recvonly | | |
| recvonly | | No parameters associated with this line | TS 24.379 [9] clause 6.2.1 | |

Table 6.2.18.3.3-4B: SIP 200 (OK) from the SS (Step 2, Table 6.2.18.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Feature-Caps | | | | |
| fcap-name | "g.3gpp.mcptt.ambient-listening-call-release" | Indicates that the MCPTT server is capable of receiving a SIP BYE from an MCPTT client to release an ambient-listening call | | |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.2.18.3.3-4C | | | |

Table 6.2.18.3.3-4C: SDP Message in SIP 200 OK (Table 6.2.18.3.3-4B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, SDP_ANSWER, PRE_ESTABLISHED_SESSION | | | | |
|--|--------------|---|----------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a= line attribute = sendonly | | |
| sendonly | | No parameters associated with this line | TS 24.379 [9] clause 6.2.2 | |

Table 6.2.18.3.3-5: Connect (Step 2, Table 6.2.18.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, ACK | | | | |
|---|--------------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Inviting MCPTT User Identity field | | | | |
| Inviting MCPTT User Identity | px_MCPTT_ID_User_A | URI, which identifies the inviting MCPTT user | | |

Table 6.2.18.3.3-6: Floor Taken (Step 3, Table 6.2.18.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, | | | | |
|--|--------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Permission to Request the Floor | | | | |
| Permission to Request the Floor | "0" | The initiator of the ambient listening call is not permitted to request the floor | | |

6.2.19 On-network / Private call / Ambient listening call / Remote initiated ambient listening call / Pre-established session / Ambient listening call release / Client Terminated (CT)

6.2.19.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private calls }
ensure that {
when { the UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated
ambient listening call within an pre-established session }
then { UE (MCPTT Client) sends a SIP 200 (OK) accepting the establishment of the MCPTT remotely
initiated ambient listening call, releases the pre-established session, and, does not notify the
user of the call establishment }
}
```

(2)

```
with { UE (MCPTT Client) having accepted a remotely initiated ambient listening call within a pre-
established session }
ensure that {
when { the UE (MCPTT Client) receives a SIP BYE request for release of the MCPTT remotely
initiated ambient listening call }
then { UE (MCPTT Client) sends a SIP 200 (OK) response and terminates the call, and, does not
notify the user for the call release }
}
```

6.2.19.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.6.2.2.2, 11.1.6.2.1.2, 11.1.6.2.1.4, 11.1.6.2.2.5. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.6.2.2.2]

The MCPTT client shall follow the procedures for termination of multimedia sessions for ambient listening calls as specified in clause 11.1.6.2.1.2.

NOTE: The terminating MCPTT client in an ambient listening call receives a SIP INVITE request with Replaces header field when using a pre-established session.

[TS 24.379, clause 11.1.6.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

- 1) may reject the SIP INVITE request if either of the conditions in step a) or b) are met:
 - a) MCPTT client is already occupied in another session and the number of simultaneous sessions exceeds <MaxCall>, the maximum simultaneous MCPTT session for private call, as specified in TS 24.384 [50]; or
 - b) MCPTT client does not have enough resources to handle the call;

- c) if neither condition a) nor b) are met, continue with the rest of the steps;
- 2) if the SIP INVITE request is rejected in step 1):
- a) shall respond towards the participating MCPTT function either with:
 - i) an appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in clause 4.4.2; or
 - ii) with a SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure according to <allow-failure-restriction> as specified in 3GPP TS 24.384 [50]; and
 - b) skip the rest of the steps of this clause;
- 3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
- a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in clause 4.4; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 1: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

- 4) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];
- 5) if the received SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <ambient-listening-type> element set to a value of "local-init", may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;
- 6) shall perform the automatic commencement procedures specified in clause 6.2.3.1.1;

NOTE 2: Auto-answer is the commencement mode for both participants in locally initiated and remotely initiated ambient listening calls.

- 7) if the <ambient-listening-type> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body in the received SIP INVITE request was set to a value of "remote-init":
 - a) shall cache the value of "listened-to MCPTT user" as the ambient listening client role for this call; or;
 - b) if the <ambient-listening-type> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body was set to a value of "local-init" shall cache the value of "listening MCPTT user" as the ambient listening client role for this call;
- 8) if the received SIP INVITE request includes an alert-info header field as specified in IETF RFC 3261 [24] and as updated by IETF RFC 7462 [77] set to a value of "<file:///dev/null>" shall not give any indication of the progress of the call to the MCPTT user;

NOTE 3: The alert-info header field having the value of "<file:///dev/null>" is intended to result in having a "null" alert, i.e. an alert with no content or physical manifestation of any kind.

- 9) if the <ambient-listening-type> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body is set to a value of "local-init", should provide an indication to the MCPTT user that the ambient listening call is in progress; and

NOTE 4: The terminating user in a remotely initiated ambient listening is the listened-to MCPTT user and is intended to be totally unaware that their microphone is activated and a call is in progress.

- 10) shall cache as the ambient listening type for the call the value contained in the <ambient-listening-type> element of the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP INVITE request.

[TS 24.379, clause 11.1.6.2.1.4]

...

Upon receipt of a SIP BYE request in the dialog of an ambient listening session, the MCPTT client:

- 1) shall comply with the procedures of subclause 6.2.6;
- 2) if the cached ambient listening client role is equal to "listened-to MCPTT user", shall provide no indication that an ambient listening call has been terminated;
- 3) if the cached ambient listening client role is equal to "listening MCPTT user", may provide an indication to the MCPTT user that the ambient listening call has been terminated; and
- 4) shall clear the cache of the data stored as:
 - a) ambient listening client role; and
 - b) ambient listening type.

[TS 24.379, clause 11.1.6.2.2.5]

This clause is referenced from other procedures.

Upon receiving an interaction with the media plane indicating release of the ambient listening call but preservation of the pre-established session as specified in clause 9.2 of 3GPP TS 24.380 [5], the MCPTT client:

- 1) if the cached ambient listening client role is equal to "listened-to MCPTT user", shall provide no indication that an ambient listening call has been terminated;
- 2) if the cached ambient listening client role is equal to "listening MCPTT user", may provide an indication to the MCPTT user that the ambient listening call has been terminated; and
- 3) shall clear the cache of the data stored as:
 - a) ambient listening client role; and
 - b) ambient listening type.

6.2.19.3 Test description

6.2.19.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.19.3.2 Test procedure sequence

Table 6.2.19.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|---------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CT session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] table 5.3.4.3-1 to establish a remotely initiated ambient listening call? | - | - | 1 | P |
| 2 | The SS (MCPTT server) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 3 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been established? (NOTE 1) | - | - | 1 | F |
| 4 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1? | - | - | 2 | P |
| 5 | Check: Does the UE (MCPTT client) notify the user that the remotely initiated ambient listening call has been released? (NOTE 1) | - | - | 2 | F |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

6.2.19.3.3 Specific message contents

Table 6.2.19.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.19.3.2-1; step 2, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1 | | | | |
|---|--|---|---|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Alert-Info | "<file:///dev/null>" | The alert-info header field having the value of "<file:///dev/null>" is intended to result in having a "null" alert, i.e. an alert with no content or physical manifestation of any kind. | TS 24.379 [9] clause 11.1.6.2.1.2 | |
| Replaces | | | RFC 3891 [117] TS 24.379 [9] clause 6.3.2.2 | |
| callid | callid of the targeted pre-established session | | | |
| replaces-params | | | | |
| from-tag | to-tag of the targeted pre-established session | | | |
| to-tag | from-tag of the targeted pre-established session | | | |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.19.3.3-1A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.19.3.3-2 | | | |

Table 6.2.19.3.3-1A: SDP Message in SIP INVITE (Table 6.2.19.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER, PRE_ESTABLISHED_SESSION, PRIVATE-CALL | | | | |
|---|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Session description: | | | | |
| Origin | | | | |
| sess-id | "87654321" | different value than for pre-established session | | |
| sess-version | "87654321" | different value than for pre-established session | | |
| Media description[1] | | Media description for audio | | |
| fmt | same value as used for pre-established session | | | |
| media attribute | | a=line attribute=recvonly | | |
| recvonly | | | | |

Table 6.2.19.3.3-2: MCPTT-Info in SIP INVITE (Table 6.2.19.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---------------------|---------|---|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | TS 24.379 [9] clause 11.1.6.2.1.2 | |
| anyExt | | | | |
| ambient-listening-type | "remote-init" | | TS 24.379 [9] clause 11.1.6.2.1.2 | |

Table 6.2.19.3.3-2A: SIP 200 (OK) from the UE (Step 2, Table 6.2.19.3.2-1; step 4, TS 36.579-1 [2] Table 5.3.4.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-body | SDP Message as described in Table 6.2.19.3.3-2B | | | |
| MIME body part | | MCPTT-Info | | |
| MIME part body | MCPTT-Info as described in Table 6.2.19.3.3-2C | | | |

Table 6.2.19.3.3-2B: SDP Message in SIP 200 OK (Table 6.2.19.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION | | | | |
|--|--------------|------------------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[1] | | Media description for audio | | |
| media attribute | | a=line attribute=sendonly | | |
| sendonly | | | | |

Table 6.2.19.3.3-2C: MCPTT-Info in SIP 200 (OK) (Table 6.2.19.3.3-2A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.19.3.3-3: SIP BYE from the SS (Step 4, Table 6.2.19.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1 | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "multipart/mixed" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| Content-ID | Unique id in format of a Message-ID assigned by the SS | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.19.3.3-4 | | | |
| MIME body part | | Signature | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-signed+xml" | | | |
| MIME-part-body | Signatures for XML MIME bodies as described in TS 36.579-1 [2] Table 5.5.13.1-2 | | | |

Table 6.2.19.3.3-4: MCPTT-Info in SIP BYE (Table 6.2.19.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---------------------------------------|---------|---------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| session-type | "ambient-listening" | | | |
| anyExt | | | | |
| ambient-listening-type | "remote-init" | | | |
| release-reason | "call-request-for-listened-to-client" | | TS 24.379 [9] clause 11.1.6.4.3 | |

6.2.20 On-network / First-to-answer call / On-demand session / Client Originated (CO)

6.2.20.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate first-to-answer calls }
ensure that {
when { UE (MCPTT User) requests the establishment of an on-demand first-to-answer call }
then { UE (MCPTT Client) sends a SIP INVITE message requesting the establishment of an on-demand
first-to-answer call providing a MIME resource-lists body with the MCPTT IDs of the potential target
MCPTT users, and, after indication from the MCPTT Server that the call was established notifies the
user }
}

```

6.2.20.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.1.2.1.1, 6.2.2. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- ...
- 4) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 5) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 6) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 7) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 8) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- ...
- 10) for the establishment of a first-to-answer call shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT IDs of the potential target MCPTT users, according to rules and procedures of IETF RFC 5366 [20];
- ...
- 12) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1 and with a media stream of the offered media-floor control entity;
- 13) if implicit floor control is required, shall comply with the conditions specified in subclause 6.4 and:
 - a) if the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true"; and
 - b) if location information has not yet been included in the SIP re-INVITE request;then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element;
- ...
- 15) if the MCPTT user is initiating a first-to-answer call shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "first-to-answer";
- ...
- 17) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

- 1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) if the sent SIP INVITE request was for the origination of a first-to-answer call and the SDP answer contained in the received SIP 200 (OK) response contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the sender of the SIP 200 (OK) response from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];
- ...
- e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the originating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [46];

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session;

...

- 4) shall notify the user that the call has been successfully established.

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
- 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;

NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.

- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4];
 - c) if the "a=recvonly" attribute is present in the SDP offer, include an "a=sendonly" attribute;
 - d) if the "a=sendonly" attribute is present in the SDP offer, include an "a=recvonly" attribute; and
 - e) "i=" field set to "speech" according to 3GPP TS 24.229 [4];
- 4) if included in the SDP offer, shall include the media-level section of the offered media-floor control entity consisting of:
 - a) an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12; and
 - b) 'fmtp' attributes as specified in 3GPP TS 24.380 [5] clause 14; and
- 5) if end-to-end security is required for a first-to-answer call, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP answer as specified in 3GPP TS 33.180 [78].

6.2.20.3 Test description

6.2.20.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The MCPTT User is authorized to initiate first-to-answer call: <allow-request-first-to-answer-call> element of the <ruleset> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.20.3.2 Test procedure sequence

Table 6.2.20.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|----------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of an first-to-answer call with targeted users B and C. (NOTE 1) | - | - | - | - |
| 2 | The E-UTRA/EPC actions which are related to the MCPTT call establishment described in 36.579-1 [2] clause 5.4.3 'MCX CO communication in E-UTRA' take place. | - | - | - | - |
| 3 | Check: Does the UE (MCPTT client) send a SIP INVITE requesting the establishment of an MCPTT first-to-answer call providing a MIME resource-lists body with the MCPTT IDs of the potential target MCPTT users? | --> | SIP INVITE | 1 | P |
| 4 | The SS (MCPTT server) sends a SIP 100 Trying. | <-- | SIP 100 (Trying) | - | - |
| 5 | The SS (MCPTT server) sends a SIP 183 (Session Progress). | <-- | SIP 183 (Session Progress) | - | - |
| 6 | The SS (MCPTT server) responds with a SIP 200 (OK) including a MIKEY-SAKKE I_MESSAGE. (NOTE 2) | <-- | SIP 200 (OK) | - | - |
| 7 | The UE (MCPTT client) sends a SIP ACK. | --> | SIP ACK | - | - |
| 8 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 1 | P |
| - | EXCEPTION: Step 9a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that takes place if the UE requests implicit floor control in step 3. | - | - | - | - |
| 9a1 | The SS (MCPTT server) sends a Floor Taken message. | <-- | Floor Taken | - | - |
| 10 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 11 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The UE (MCPTT client) is expected to extract and decrypt the encapsulated parameters. With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session. | | | | | |

6.2.20.3.3 Specific message contents

Table 6.2.20.3.3-1: SIP INVITE from the UE (Step 2, Table 6.2.20.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|---|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | any value if present | NOTE 1 | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.20.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.20.3.3-3 | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.20.3.3-4 | | | |
| <p>NOTE 1: In case of a first-to-answer call there is no use for the client sending any Answer-Mode as according to TS 24.379 [9] clause 11.1.1.4.1 the MCPTT server sends the INVITE to the invited clients with Priv-Answer-Mode "Manual" independent from what the originating client has sent. ⇒ In general the originating client should not include any Answer-Mode in the INVITE but this is not checked.</p> | | | | |

Table 6.2.20.3.3-2: SDP message in SIP INVITE (Table 6.2.20.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition INITIAL_SDP_OFFER, WITHOUT_SECURITY | | | | |
|--|-------------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[2] | optional (NOTE 1) | Media description for media control | | |
| media attribute | | a= line attribute = fntp | | |
| fntp | | | | |
| format specific parameters | | | | |
| mc_implicit_request | optional (NOTE 1) | | | |
| <p>NOTE 1: Whether the UE (MCPTT client) requests a call with or without Floor control depends on implementation. The SS shall respect the type of Floor control being requested, if requested (see Table 6.2.20.3.3-6).</p> | | | | |

Table 6.2.20.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.20.3.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, FIRST-TO-ANSWER |
|--|

Table 6.2.20.3.3-4: Resource-lists in SIP INVITE (Table 6.2.20.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition FIRST-TO-ANSWER. |
|---|

Table 6.2.20.3.3-4A: SIP 183 (Session Progress) from the SS (step 5, Table 6.2.20.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.16.3.2-1 | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Contact | not present | | | |

Table 6.2.20.3.3-5: SIP 200 (OK) from the SS (step 6, Table 6.2.20.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|--|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.2.20.3.3-6 | | | |

Table 6.2.20.3.3-6: SDP Message in SIP 200 (OK) (Table 6.2.20.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, WITH_SECURITY | | | | |
|--|--------------|-------------------------------------|-----------|---------------------------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[2] | | Media description for media control | | WITH_ME DIACONT ROL |

| Condition | Explanation |
|-------------------|---|
| WITH_MEDIACONTROL | The SDP offer sent by the UE at step 3 (Table 6.2.20.3.3-2) contains a media description for media control. In this case, if the fmtp attribute of the SDP offer contains the mc_implicit_request parameter, conditions IMPLICIT_GRANT_REQUESTED but NOT IMPLICIT_FLOOR_GRANTED shall be applied for the SDP answer. |

Table 6.2.20.3.3-7..8: Void

6.2.21 On-network / First-to-answer call / On-demand session / Client Terminated (CT)

6.2.21.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to participate in private calls }
ensure that {
when { UE (MCPTT Client) receives a request for establishment of an on-demand first-to-answer-call }
then { UE (MCPTT Client) notifies the User for the incoming call, and, responds to the Server with a SIP 180 (Ringing) message, and, after the User accepts the call sends to the Server a SIP 200 (OK) message }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to participate in private calls, having received a request for establishment of an on-demand first-to-answer call, and, having not yet answered it }
ensure that {
when { UE (MCPTT Client) receives a SIP CANCEL message }
then { UE (MCPTT Client) sends a SIP 200 (OK) to confirm the reception of the SIP CANCEL followed by a SIP 487 (Request Terminated) to confirm terminating of the dialog }
}
```

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to participate in private calls, having received a request for establishment of an on-demand first-to-answer call, and, having send a SIP 200 (OK) accepting the establishment of an MCPTT on-demand first to answer-call (due to the User answering the call) }
ensure that {
```

```

when { UE (MCPTT Client) receives a SIP BYE with the <release-reason> element set to a value of "not
selected for call" }
  then { UE (MCPTT Client) sends a SIP 200 (OK) to confirm termination of the MCPTT session }
  }

```

6.2.20.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.1.2.1.2, 11.1.4.2, 6.2.2, 6.2.3.1.1, 6.2.3.2.1, 6.2.6. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 5) if an end-to-end security context needs to be established and if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer" then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
 - c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the originator of the SIP INVITE request as determined by the procedures of subclause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
 - f) shall add the MCPTT ID of the MCPTT user to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and

NOTE 4: The initiator of the MIKEY-SAKKE I_MESSAGE is in this case the terminating client from the perspective of the call.

- g) shall sign the MIKEY-SAKKE I_MESSAGE using the MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

...

- 8) if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer":
 - a) shall notify the user of the incoming call;
 - b) shall not forward the first-to-answer call;
 - c) if the MCPTT user is busy on another call, shall send a SIP 486 (Busy Here) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this subclause; and
 - d) if the MCPTT user does not answer the call within a time decided by the client implementation, the MCPTT client shall send a SIP 480 (Temporarily Unavailable) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this subclause;

NOTE 5: In the conditions below, as the SIP layer implements the actions for commencement mode, it is assumed that the Answer-Mode or Priv-Answer-Mode header fields are set correctly in line with the setting of the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request.

...

10) shall perform the manual commencement procedures specified in subclause 6.2.3.2.1 if either of the following conditions are met:

...

Upon receiving the SIP CANCEL request cancelling a SIP INVITE request for which a dialog exists at the MCPTT client and a SIP 200 (OK) response has not yet been sent to the SIP INVITE request then the MCPTT client:

1) if the session was established with a <session-type> of "first-to-answer", may notify the MCPTT user of the cancellation of the call;

...

3) shall send a SIP 200 (OK) response to the SIP CANCEL request according to 3GPP TS 24.229 [4]; and

4) shall send a SIP 487 (Request Terminated) response to the SIP INVITE request according to 3GPP TS 24.229 [4].

Upon receiving a SIP BYE request for an established dialog, the MCPTT client:

...

2) shall follow the procedures in subclause 11.1.4.2.

NOTE 6: The above conditions for SIP CANCEL and SIP BYE cover the case for a first-to-answer call where the MCPTT server has already established the private call with another MCPTT client and needs to immediately cancel or release the dialogs with other MCPTT clients.

[TS 24.379, clause 6.2.3.2.1]

When performing the manual commencement mode procedures:

1) if the MCPTT user declines the MCPTT session invitation the MCPTT client shall send a SIP 480 (Temporarily Unavailable) response towards the MCPTT server with the warning text set to: "110 user declined the call invitation" in a Warning header field as specified in subclause 4.4, and not continue with the rest of the steps in this subclause.

The MCPTT client:

1) shall accept the SIP INVITE request and generate a SIP 180 (Ringing) response according to rules and procedures of 3GPP TS 24.229 [4];

2) shall include the option tag "timer" in a Require header field of the SIP 180 (Ringing) response;

3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 180 (Ringing) response;

4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 180 (Ringing) response; and

5) shall send the SIP 180 (Ringing) response to the MCPTT server.

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.3.1.1]

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- ...
- 7) shall, if the incoming SIP INVITE request does not contain a Replaces header field, include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.2;
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- 9) shall, if the incoming SIP INVITE request contains a Replaces header field, release the pre-established session identified by the contents of the Replaces header field; and
- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.2]

When the MCPTT client receives an initial SDP offer for an MCPTT session, the MCPTT client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [4].

When composing an SDP answer, the MCPTT client:

- 1) shall accept the MCPTT speech media stream in the SDP offer;
 - 2) shall set the IP address of the MCPTT client for the accepted MCPTT speech media stream and, if included in the SDP offer, for the accepted media-floor control entity;
- NOTE: If the MCPTT client is behind a NAT the IP address and port included in the SDP answer can be a different IP address and port than the actual IP address and port of the MCPTT client depending on the NAT traversal method used by the SIP/IP Core.
- 3) shall include an "m=audio" media-level section for the accepted MCPTT speech media stream consisting of:
 - a) the port number for the media stream;
 - b) media-level attributes as specified in 3GPP TS 24.229 [4];
 - c) if the "a=recvonly" attribute is present in the SDP offer, include an "a=sendonly" attribute;
 - d) if the "a=sendonly" attribute is present in the SDP offer, include an "a=recvonly" attribute; and
 - e) "i=" field set to "speech" according to 3GPP TS 24.229 [4];
 - 4) if included in the SDP offer, shall include the media-level section of the offered media-floor control entity consisting of:
 - a) an "m=application" media-level section as specified in 3GPP TS 24.380 [5] clause 12; and
 - b) 'fmt' attributes as specified in 3GPP TS 24.380 [5] clause 14; and

- 5) if end-to-end security is required for a first-to-answer call, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP answer as specified in 3GPP TS 33.180 [78].

[TS 24.379, clause 11.1.4.2]

Upon receiving a SIP BYE request for private call session, the MCPTT client shall follow the procedures as specified in subclause 6.2.6.

[TS 24.379, clause 6.2.6]

Upon receiving a SIP BYE request, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5]; and
- 2) shall send SIP 200 (OK) response towards MCPTT server according to 3GPP TS 24.229 [4].

6.2.21.3 Test description

6.2.21.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The MCPTT User is authorized to participate in private calls: the <allow-private-call-participation> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.21.3.2 Test procedure sequence

Table 6.2.21.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|------------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 to establish a first-to-answer call? | - | - | 1 | P |
| 2 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 3a1-6A | Steps 1a1-4A of procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 are performed. | - | - | - | - |
| 7 | The SS (MCPTT server) sends a SIP CANCEL to cancel the request (another Client has answered). | <-- | SIP CANCEL | - | - |
| 8 | Check: Does the UE (MCPTT client) respond with SIP 200 (OK)? (NOTE 1) | --> | SIP 200 (OK) | 3 | P |
| 9 | Check: Does the UE (MCPTT client) send a SIP 487 (Request Terminated) to confirm terminating of the dialog? (NOTE 1) | --> | SIP 487 (Request Terminated) | 3 | P |
| 9A | The SS (MCPTT server) sends a SIP ACK. | <-- | SIP ACK | - | - |
| - | EXCEPTION: The SS waits 2 seconds before the SS deactivates the dedicated EPS bearer and releases the RRC connection. NOTE: The specified wait period of 2s shall ensure that lower layer signalling (TCP) is finished and any not allowed behaviour captured. | - | - | - | - |
| 10a1-15 | Steps 1a1-6 of procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 are performed. | - | - | - | - |
| 16 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 to release the call with the SIP BYE from the SS containing a <release-reason> element set to "not selected for call" (another Client has answered)? | - | - | 4 | P |
| NOTE 1: The order of the messages is not checked. | | | | | |

6.2.21.3.3 Specific message contents

Table 6.2.21.3.3-1: SIP INVITE from the SS (Steps 1, 4, 11, Table 6.2.21.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition FIRST-TO-ANSWER | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.21.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.21.3.3-3 | | | |

Table 6.2.21.3.3-2: SDP Message in SIP INVITE (Table 6.2.21.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition INITIAL_SDP_OFFER, WITHOUT_FLOORCONTROL |
|--|
|--|

Table 6.2.21.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.21.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition FIRST-TO-ANSWER |
|--|
|--|

Table 6.2.21.3.3-4: Void**Table 6.2.21.3.3-5: SIP 200 (OK) from the UE (Steps 1, 15, Table 6.2.21.3.2-1; step 6, TS 36.579-1 [2], Table 5.3.6.3-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.21.3.3-6 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.21.3.3-6A | | | |

Table 6.2.21.3.3-6: SDP Message in SIP 200 (OK) (Table 6.2.21.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition WITHOUT_FLOORCONTROL, WITH_SECURITY |
|--|
|--|

Table 6.2.21.3.3-6A: MCPTT-Info in SIP 200 (OK) (Table 6.2.21.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP |
|---|
|---|

Table 6.2.21.3.3-7..8: Void**Table 6.2.21.3.3-8A: SIP ACK from the SS (Step 9A, Table 6.2.21.3.2-1)**

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.1.2-1, condition NON-2XX |
|--|
|--|

Table 6.2.21.3.3-9: SIP BYE from the SS (Step 16, Table 6.2.21.3.2-1; step 1, TS 36.579-1 [2], Table 5.3.12.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1 | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "multipart/mixed" | | | |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| Content-ID | Unique id in format of a Message-ID assigned by the SS | | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.21.3.3-10 | | | |
| MIME body part | | Signature | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-signed+xml" | | | |
| MIME-part-body | Signatures for XML MIME bodies as described in TS 36.579-1 [2] Table 5.5.13.1-2 | | | |

Table 6.2.21.3.3-10: MCPTT-Info in SIP BYE (Table 6.2.21.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|-------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| anyExt | | | | |
| release-reason | "not selected for call" | | | |

6.2.22 On-network / First-to-answer call / Pre-established session / Client Originated (CO)

6.2.22.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate first-to-answer calls, and, having established a pre-established session }
ensure that {
  when { MCPTT User requests the establishment of an MCPTT first-to-answer call within the pre-
established session }
  then { UE (MCPTT Client) sends a SIP REFER request outside a dialog requesting an MCPTT first-
to-answer call and providing a MIME resource-lists body with the MCPTT IDs of the potential target
MCPTT users }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate first-to-answer calls, and, having established a pre-established session, and, having send
a SIP REFER request outside a dialog requesting an MCPTT first-to-answer call and providing a MIME
resource-lists body with the MCPTT IDs of the potential target MCPTT users }
ensure that {
  when { UE (MCPTT Client) receives a Connect message from the participating MCPTT function }
  then { UE (MCPTT Client) sends an Acknowledge message indicating that the connection to the pre-
established session is accepted }
}
```



```

    }

```

(3)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate first-to-answer calls, and, having established a pre-established session, and, having send
a SIP REFER request outside a dialog requesting an MCPTT first-to-answer call and providing a MIME
resource-lists body with the MCPTT IDs of the potential target MCPTT users, and, having accepted the
connection to the pre-established session }
ensure that {
  when { UE (MCPTT Client) receives a re-INVITE within the pre-established session }
  then { UE (MCPTT Client) sends OK confirming the establishment of the first-to-answer call and
notifies the user }
}

```

6.2.22.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.2.2, 11.1.1.2.2.1, 11.1.1.2.2.2, TS 24.380 clauses 4.1.2.2, 9.2.2.3.2. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.2.2]

When the MCPTT user wants to make a private call without floor control or first-to-answer call without floor control using a pre-established session, the MCPTT client shall follow the procedures in subclause 11.1.1.2.2.1 with the following exceptions:

...

- 2) step 9a) is re-written as: if the SDP parameters of the pre-established session contain a media-level section of a media-floor control entity, an application/sdp MIME body containing the SDP parameters of the pre-established session according to 3GPP TS 24.229 [4] with the clarifications given in subclause 6.2.1. If the pre-established session was established with implicit floor control, then the application/sdp MIME body shall not contain the implicit floor request as specified in subclause 6.4.

[TS 24.379, clause 11.1.1.2.2.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call within a pre-established session the MCPTT client shall generate a SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], with the clarifications given below.

...

The MCPTT client populates the SIP REFER request as follows:

- 1) shall include the Request-URI set to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 2) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];
- 3) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 4) shall include the option tag "multiple-refer" in the Require header field;
- 5) may include a P-Preferred-Identity header field in the SIP REFER request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 6) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];
- 7) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL.

...

- 9) for an initiation of a first-to-answer call, shall include in the application/resource-lists MIME body an <entry> element for each of the targeted MCPTT users, with each <entry> element containing a "uri" attribute set to the MCPTT ID of the targeted user, extended with hname "body" URI header field containing:

NOTE 2: Characters that are not formatted as ASCII characters are escaped in the following URI header fields

- a) if the SDP parameters of the pre-established session do not contain a media-level section of a media-floor control entity, an application/sdp MIME body containing the SDP parameters of the pre-established session according to 3GPP TS 24.229 [4] with the clarification given in subclause 6.2.1. If implicit floor control is required and the pre-established session was not established with an implicit floor request, then the application/sdp MIME body shall contain an implicit floor request as specified in subclause 6.4; and
- b) an application/vnd.3gpp.mcptt-info MIME body with the <session-type> element set to "first-to-answer";

...

- 12) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and

13) if:

- a) implicit floor control is required;
- b) the pre-established session was not established with an implicit floor request; and
- c) location information has not yet been included in the SIP REFER request;

then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element.

The MCPTT client shall send the SIP REFER request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a final SIP 2xx response to the SIP REFER request the MCPTT client shall interact with media plane as specified in 3GPP TS 24.380 [5].

...

Upon receipt of a SIP re-INVITE request within the pre-established session targeted by the sent SIP REFER request, the MCPTT client:

- 1) if the sent SIP REFER request was a request to originate a first-to-answer call:

- a) if the received SIP re-INVITE request contains an SDP offer including an a=key-mgmt attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - i) shall extract the MCPTT ID of the sender of the SIP 200 (OK) response from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - ii) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];
 - iii) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];

...

vii) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:

- A) shall extract and decrypt the encapsulated PCK using the originating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
- B) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 3: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session;

...

- 4) shall accept the SIP re-INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 5) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP re-INVITE request according to 3GPP TS 24.229 [4], based upon the parameters already negotiated for the pre-established session; and
- 6) shall send the SIP 200 (OK) response towards the participating MCPTT function according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.380, clause 4.1.2.2]

For a pre-arranged group call, when the originator initiates the call setup indicating the use of a pre-established session using SIP messages as specified in 3GPP TS 24.379 [2], the participating MCPTT function (which serves the originating MCPTT client) sends to the originating MCPTT client a Connect message after the controlling MCPTT function accepts the initiation of this call. After the reception of this Connect message the originating MCPTT client sends an Acknowledgment message indicating that the connection is accepted or indicating that the connection is not accepted. If the connection is accepted by the originating MCPTT client, the floor control for this call continues as specified in clause 6.

For a pre-arranged group call if the controlling MCPTT function as triggered by an originating group member initiates a call as specified in 3GPP TS 24.379 [2], the participating MCPTT function which serves the terminating MCPTT client sends a Connect message to all affiliated MCPTT clients of this group. After the reception of the Connect message the terminating MCPTT client sends an Acknowledgment message indicating that the connection is accepted or indicating that the connection is not accepted. If the connection is accepted by the terminating MCPTT client, the floor control for this call continues as specified in clause 6.

NOTE: If a terminating client does not have an available pre-established session, the call setup proceeds as in on-demand call setup as specified in 3GPP TS 24.379 [2].

...

For a private call the procedures for the originator are the same as for the originator initiating a call for a pre-arranged call setup over a pre-established session, with the difference that the recipient of the call is a private user and not a pre-arranged group.

For a private call if the controlling MCPTT function as triggered by the originator initiates a call as specified in 3GPP TS 24.379 [2], the participating MCPTT function (which serves the terminating MCPTT client) sends a Connect message to the terminating MCPTT client served by the participating MCPTT function if this MCPTT client has an available pre-established session and the commencement mode is automatic. If the commencement mode is manual the terminating MCPTT client is invited using SIP procedures as specified in 3GPP TS 24.379 [2].

[TS 24.380, clause 9.2.2.3.2]

Upon reception of a Connect message:

1. if the MCPTT client accepts the incoming call the MCPTT client:
 - a. shall send the Acknowledgement message with Reason Code field set to 'Accepted';
 - b. shall use only the media streams of the pre-established session which are indicated as used in the associated call session Media Streams field, if the Connect contains a Media Streams field;
 - c. shall create an instance of the 'Floor participant state transition diagram for basic operation' as specified in subclause 6.2.4; and
 - d. shall enter the 'U: Pre-established session in use' state; or

6.2.22.3 Test description

6.2.22.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- The MCPTT User is authorized to initiate first-to-answer call: <allow-request-first-to-answer-call> element of the <ruleset> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.22.3.2 Test procedure sequence

Table 6.2.22.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of an MCPTT first-to-answer call with targeted users B and C using the pre-established session. (NOTE 1) | - | - | - | - |
| 2a1-4 | Check: Does the UE (MCPTT client) correctly perform steps 1a1-3 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1? NOTE: The UE sends a SIP REFER which is responded with a SIP 200 OK. | - | - | 1 | P |
| 5-6 | Void | - | - | - | - |
| 7 | The SS (MCPTT server) sends a SIP re-INVITE containing the a=key-mgmt attribute. NOTE: The SS simulates the case when the first-to-answer Client sent a SIP 200 (OK) response containing an SDP answer including an a=key-mgmt "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE. | <-- | SIP INVITE | - | - |
| - | EXCEPTION: Step 8a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place when the UE responds to a SIP INVITE with a SIP 100 (Trying) | - | - | - | - |
| 8a1 | The UE (MCPTT client) sends a SIP 100 (Trying). | --> | SIP 100 (Trying) | - | - |
| 9 | Check: Does the UE (MCPTT client) send a SIP 200 (OK)? | --> | SIP 200 (OK) | 3 | P |
| 10 | The SS (MCPTT server) sends a SIP ACK. | <-- | SIP ACK | - | - |
| 10A-10B | Check: Does the UE (MCPTT client) correctly perform steps 4-5 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] Table 5.3A.3.3-1? NOTE: The UE acknowledges the Connect sent by the SS. | - | - | 2 | P |
| 11 | Check: Does the UE (MCPTT client) notify the user that the call has been established? (NOTE 1) | - | - | 3 | P |
| 12 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 13 | The UE (MCPTT client) performs the procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The media plane control messages related to call setup/release over a pre-established session are sent over the channel used for media plane control. | | | | | |

6.2.22.3.3 Specific message contents

Table 6.2.22.3.3-1: SIP REFER from the UE (Step 3, Table 6.2.22.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1 | | | | |
|--|--|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists described in Table 6.2.22.3.3-2 | | | |

Table 6.2.22.3.3-2: Resource-lists in SIP REFER (Table 6.2.22.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.3.1-1, condition PRE-ESTABLISH AND FIRST-TO-ANSWER with the uri attribute of each entry extended with the SIP URI header fields as specified in Table 6.2.22.3.3-3.

Table 6.2.22.3.3-3: SIP header fields extending the uri attributes of the resource-lists' entries (Table 6.2.22.3.3-2)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2 | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | any value if present | NOTE 1 | | |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.22.3.3-4 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.22.3.3-5 | | | |

NOTE 1: In case of a first-to-answer call there is no use for the client sending any Answer-Mode as according to TS 24.379 [9] clause 11.1.1.4.1 the MCPTT server sends the INVITE to the invited clients with Priv-Answer-Mode "Manual" independent from what the originating client has sent.
 ⇒ In general the originating client should not include any Answer-Mode in the INVITE but this is not checked.

Table 6.2.22.3.3-4: SDP Message in SIP REFER (Table 6.2.22.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition SDP_OFFER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL, WITHOUT_SECURITY

Table 6.2.22.3.3-5: MCPTT-Info in SIP REFER (Table 6.2.22.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFER, FIRST-TO-ANSWER

Table 6.2.22.3.3-5A: SIP 200 (OK) from the SS (step 3, Table 6.2.22.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP | | | | |
|---|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.2.22.3.3-5B | | | |

Table 6.2.22.3.3-5B: SDP in SIP 200 (OK) (Table 6.2.22.3.3-5A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.2.22.3.3-6: SIP INVITE from the SS (Step 7, Table 6.2.22.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition re_INVITE, MO_CALL | | | | |
|---|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP Message | SDP message as described in Table 6.2.22.3.3-6A | | | |

Table 6.2.22.3.3-6A: SDP Message in SIP INVITE (Table 6.2.22.3.3-6)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITH_SECURITY, WITHOUT_FLOORCONTROL | | | | |
|---|---|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[2] | | Media description for media control | | |
| media attribute | | a= line attribute = fmtp | | |
| fmtp | | | | |
| format | "MCPTT" | | | |
| format specific parameters | same parameters as sent to the UE in the SDP answer during establishment of the pre-established session (step 10 of table 5.3.3.3-1 in TS 36.579-1 [2]) | | | |

Table 6.2.22.3.3-7: SIP 200 (OK) from the UE (Step 9, Table 6.2.22.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP | | | | |
|--|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | Not present | | | |
| Message-body | Not present | | | |

Table 6.2.22.3.3-8: Void

6.2.23 On-network / First-to-answer call / Pre-established session / Client Terminated (CT)

6.2.23.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
receive private calls, and, having established a pre-established session }
ensure that {
  when { the UE (MCPTT Client) receives a SIP INVITE message as a part of request for establishment
of a first-to-answer call }
  then { UE (MCPTT Client) notifies the User for the incoming call, and, responds to the Server
with a SIP 180 (Ringing) message, and, after the User accepts the call sends to the Server a SIP 200
(OK) message }
}
```

(2)

Void

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate first to answer calls, and, having established a CT on-demand session replacing a pre-
established session }
ensure that {
  when { UE (MCPTT User) wants to release the MCPTT first-to-answer call }
  then { UE (MCPTT Client) sends a SIP BYE request and after receiving a SIP 200 (OK) terminates
the call }
}
```

6.2.23.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.1.2.1.2, 11.1.1.2.2.2, 6.2.3.1.1, 6.2.3.2.1, 6.2.5.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.1.2.1.2]

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

...

- 5) if an end-to-end security context needs to be established and if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer" then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
 - c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the originator of the SIP INVITE request as determined by the procedures of subclause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];

- f) shall add the MCPTT ID of the MCPTT user to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and

NOTE 4: The initiator of the MIKEY-SAKKE I_MESSAGE is in this case the terminating client from the perspective of the call.

- g) shall sign the MIKEY-SAKKE I_MESSAGE using the MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

...

- 8) if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer":

- a) shall notify the user of the incoming call;
- b) shall not forward the first-to-answer call;
- c) if the MCPTT user is busy on another call, shall send a SIP 486 (Busy Here) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this subclause; and
- d) if the MCPTT user does not answer the call within a time decided by the client implementation, the MCPTT client shall send a SIP 480 (Temporarily Unavailable) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this subclause;

NOTE 5: In the conditions below, as the SIP layer implements the actions for commencement mode, it is assumed that the Answer-Mode or Priv-Answer-Mode header fields are set correctly in line with the setting of the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request.

...

- 10) shall perform the manual commencement procedures specified in subclause 6.2.3.2.1 if either of the following conditions are met:

...

[TS 24.379, clause 11.1.1.2.2.2]

The MCPTT client shall follow the procedures for termination of multimedia sessions as specified in clause 11.1.1.2.1.2 with the following clarifications:

...

[TS 24.379, clause 6.2.3.2.1]

When performing the manual commencement mode procedures:

- 1) if the MCPTT user declines the MCPTT session invitation the MCPTT client shall send a SIP 480 (Temporarily Unavailable) response towards the MCPTT server with the warning text set to: "110 user declined the call invitation" in a Warning header field as specified in subclause 4.4, and not continue with the rest of the steps in this subclause.

The MCPTT client:

- 1) shall accept the SIP INVITE request and generate a SIP 180 (Ringing) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 180 (Ringing) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 180 (Ringing) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 180 (Ringing) response; and
- 5) shall send the SIP 180 (Ringing) response to the MCPTT server.

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in subclause 6.2.3.1.1.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.3.1.1]

- 1) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4];
- 2) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;
- 3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 200 (OK) response;
- 4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 200 (OK) response;
- 5) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [7]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";
- 6) shall, if the incoming SIP INVITE request contains a Replaces header field, include in the SDP answer in the SIP 200 (OK) response to the SDP offer the parameters used for the pre-established session identified by the contents of the Replaces header field;
- ...
- 8) shall send the SIP 200 (OK) response towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4];
- 9) shall, if the incoming SIP INVITE request contains a Replaces header field, release the pre-established session identified by the contents of the Replaces header field; and
- 10) shall interact with the media plane as specified in 3GPP TS 24.380 [5] subclause 6.2.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this subclause and as specified in IETF RFC 5626 [15].

[TS 24.379, clause 6.2.5.1]

When the MCPTT client wants to release an MCPTT session using on-demand session signalling, the MCPTT client:

- 1) if the session is in the process of being established, shall send a SIP CANCEL request according to 3GPP TS 24.229 [4] and skip the rest of the steps;
- 2) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 3) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 4) shall set the Request-URI to the MCPTT session identity to release; and
- 5) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

6.2.23.3 Test description

6.2.23.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4.

The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- The MCPTT User is authorized to participate in private calls: the <allow-private-call-participation> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.23.3.2 Test procedure sequence

Table 6.2.23.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX CT private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.6.3-1 to establish a first-to-answer call? | - | - | 1 | P |
| 2-4 | Void | - | - | - | - |
| 5 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 6 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | 3 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.23.3.3 Specific message contents

Table 6.2.23.3.3-1: SIP INVITE from the SS (Step 1, Table 6.2.23.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition FIRST-TO-ANSWER | | | | |
|--|--|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Replaces | | | RFC 3891 [117] TS 24.379 [9] clause 6.3.2.2 | |
| callid | callid of the targeted pre-established session | | | |
| replaces-params | | | | |
| from-tag | to-tag of the targeted pre-established session | | | |
| to-tag | from-tag of the targeted pre-established session | | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP message as described in Table 6.2.23.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.23.3.3-3 | | | |

Table 6.2.23.3.3-2: SDP Message in SIP INVITE (Table 6.2.23.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition FIRST_SDP_FROM_SS, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL (NOTE 1) | | | | |
|--|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Session description: | | | | |
| Origin | | | | |
| sess-id | "87654321" | different value than for pre-established session | | |
| sess-version | "87654321" | different value than for pre-established session | | |
| Media description[1] | | Media description for audio | | |
| media description | | m= line media = audio | | |
| fmt | same value as used for pre-established session | | | |

NOTE 1: Without floor control is chosen for simplifying the test sequence and to check that the client does not copy the media description for media control as negotiated for the pre-established session to the SDP answer for the new session.

Table 6.2.23.3.3-3: MCPTT-Info in SIP INVITE (Table 6.2.23.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition FIRST-TO-ANSWER |
|--|
|--|

Table 6.2.23.3.3-4: Void

Table 6.2.23.3.3-5: SIP 200 (OK) from the UE (Step 1, Table 6.2.23.3.2-1; step 6, TS 36.579-1 [2], Table 5.3.6.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1 | | | | |
|--|--|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.23.3.3-6 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.23.3.3-6A | | | |

Table 6.2.23.3.3-6: SDP Message in SIP 200 (OK) (Table 6.2.23.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition WITH_SECURITY, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Session description: | | | | |
| Origin | | o= line | | |
| sess-id | different value than used in the SDP offer for establishment of the pre-established session | | | |
| sess-version | any allowed value | | | |
| Media description[1] | | | | |
| media description | same values as in in the SDP offer for establishment of the pre-established session | m= line media = audio Especially port and fmt shall be the same | | |
| Bandwidth | same values as in in the SDP offer for establishment of the pre-established session | | | |
| media attribute | same rtpmap attribute as in in the SDP offer for establishment of the pre-established session | a= line attribute = rtpmap | | |
| media attribute | same fmtp attribute as in in the SDP offer for establishment of the pre-established session | a= line attribute = fmtp | | |
| Media description[2] | | | | |
| | Not present | Media description for media control | | |

Table 6.2.23.3.3-6A: MCPTT-Info in SIP 200 (OK) (Table 6.2.23.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE-RSP | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.23.3.3-7-8: Void

6.2.24 On-network / Private call / Remotely initiated private call / Client Originated (CO)

6.2.24.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate Remotely initiated private call and to participate in private calls }
ensure that {
when { UE (MCPTT User) requests the establishment of a remotely initiated private call to a third
party }
then { UE (MCPTT Client) sends a SIP MESSAGE message requesting the establishment of a remotely
initiated private call }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate Remotely initiated private call and to participate in private calls, and, having requested
the establishment of a remotely initiated private call }
ensure that {
when { UE (MCPTT User) receives a SIP MESSAGE message indicating the outcome of the requested
establishment of a remotely initiated private call }
then { UE (MCPTT Client) sends a SIP OK message to confirm the reception of the SIP MESSAGE }
}
```

6.2.24.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.7.2.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.7.2.1]

Upon receiving a request from the MCPTT to send a remotely initiated private call request to the remote MCPTT user to originate a private call to an identified MCPTT user, the MCPTT client:

1) if:

- a) the <allow-request-remote-init-private-call> element of the <ruleset> element is not present in the requesting MCPTT user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false";

...

- 2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
 - a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-called-party-id> element set to the MCPTT ID of the identified MCPTT user of the remotely initiated private call; and
 - ii) an <anyExt> element containing:

- A) the <request-type> element set to a value of "remotely-initiated-private-call-request";
 - B) the <notify-remote-user> element set to a value of "true" if the requesting MCPTT user has indicated that the remote MCPTT user be notified of the remotely initiated private call request; and
 - C) the <notify-remote-user> element set to a value of "false" if the requesting MCPTT user has indicated that the remote MCPTT user not be notified of the remotely initiated private call request;
- e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the remote MCPTT user, according to rules and procedures of IETF RFC 5366 [20]; and
 - f) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user; and
- 3) shall send the SIP MESSAGE request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

...

Upon receiving a "SIP MESSAGE request for remotely initiated private call response for terminating client", the MCPTT client:

- 1) shall determine the success or failure of the sent remotely initiated private call request from the value of the <remotely-initiated-call-outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and
- 2) should indicate to the requesting MCPTT user the success or failure of the sent remotely initiated private call request.

6.2.24.3 Test description

6.2.24.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The MCPTT User is authorized to initiate Remotely initiated private call: the <allow-request-remote-init-private-call> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- The MCPTT User is authorized to participate in private calls: the <allow-private-call-participation> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state.
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.24.3.2 Test procedure sequence

Table 6.2.24.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|---|------------------|---------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a remotely initiated private call from user B to user C. (NOTE 1) | - | - | - | - |
| 2-4 | Check: Does the UE (MCPTT client) correctly perform steps 1a1-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 to request the establishment of a remotely initiated private call? | - | - | 1 | P |
| 5 | Wait for 3 sec (an arbitrary value to simulate the time needed for the establishment of the remote private call). | - | - | - | - |
| 6-8 | Check: Does the UE (MCPTT client) correctly perform steps 2-4 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 confirming the progress of the remotely initiated private call? (NOTE 2) | - | - | 2 | P |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The UE is expected to determine the success or failure of the sent remotely initiated private call request. Following this the UE client may indicate to the requesting MCPTT user the success or failure of the sent remotely initiated private call request. This is not verified because the indication to the User is not mandated. | | | | | |

6.2.24.3.3 Specific message contents

Table 6.2.24.3.3-1: SIP MESSAGE from the UE (Step 3, Table 6.2.24.3.2-1; Step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 condition RESOURCE_LISTS | | | | |
|--|------------------------------------|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | As described in Table 6.2.24.3.3-2 | | | |

Table 6.2.24.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.2.24.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRIVATE-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_C | Encrypted according to NOTE 2 of Table 5.5.3.2.1-1 in TS 36.579-1 [2] | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| request-type | "remotely-initiated-private-call-request" | | | |
| notify-remote-user | Any allowed value | | | |

Table 6.2.24.3.3-3: SIP MESSAGE from the SS (Step 6, Table 6.2.24.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.24.3.3-4 | | | |

Table 6.2.24.3.3-4: MCPTT-Info in SIP MESSAGE (Table 6.2.24.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_C | Encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| anyExt | | | | |
| response-type | "remotely-initiated-private-call-response" | | | |
| remotely-initiated-call-outcome | "success" | | | |

6.2.25 On-network / Private call / Remotely initiated private call / On-demand session / Client Terminated (CT)

6.2.25.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to initiate private calls, **and**, according to local policy on-demand sessions are to be used for remotely initiated private calls }
ensure that {
when { UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated private call with the MCPTT ID of the identified MCPTT user of the remotely initiated private call set to the ID of the MCPTT user requesting the call initiation, **and**, the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false" } }

then { UE (MCPTT Client) initiates private call establishment to the requesting User using on-demand session, **and**, does not notify the user that a remotely initiated private call request to call the identified MCPTT user has been received, **and**, when a SIP 180 (Ringing) response is received to the sent SIP INVITE request, does not give any indication to the remote MCPTT user that the remotely initiated private call origination is in progress, **and**, does not sent SIP MESSAGE back to the MCPTT user requesting the call initiation }
 }

(2)

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to initiate private calls, **and**, according to local policy on-demand sessions are to be used for remotely initiated private calls }
 ensure that {
when { UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated private call with the MCPTT ID of the identified MCPTT user of the remotely initiated private call set to ID different to the ID of the MCPTT user requesting the call initiation }
then { UE (MCPTT Client) initiates private call establishment to the requested identified MCPTT user using on-demand session, **and**, sends SIP MESSAGE back to the MCPTT user requesting the call initiation to confirm the private call initiation }
 }

6.2.25.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.7.2.2, 11.1.1.2.1.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.7.2.2]

Upon receiving a "SIP MESSAGE request for remotely initiated private call request for terminating client", the MCPTT client:

...

- 2) shall extract the MCPTT ID of the identified MCPTT user from the <mcptt-called-party-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request;
- 3) if according to local policy on-demand sessions are to be used for remotely initiated private calls, shall invoke the procedures of clause 11.1.1.2.1.1 to originate an MCPTT private call to the identified MCPTT user with the following clarifications:
 - a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":
 - i) shall not indicate to the remote MCPTT user that a remotely initiated private call request to call the identified MCPTT user has been received; and
 - ii) if a SIP 180 (Ringing) response or SIP 183 (Session Progress) response is received to the to the sent SIP INVITE request, shall not give any indication to the remote MCPTT user that the remotely initiated private call origination is in progress; and

...

Upon completion of the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1, the MCPTT client:

- 1) if:
 - a) the MCPTT ID of the identified MCPTT user is identical to the <mcptt-calling-user-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request: and
 - b) the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user;

then:

- a) shall skip the remaining steps of the current clause;

NOTE: In this case, it is not necessary to send a response to the sender of the remotely initiated private call request as the sender and the terminating party of the successful private call origination are the same user and will be aware of the request's outcome.

- 2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
 - a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];
 - d) shall include in an application/resource-lists+xml MIME body the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
 - e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-called-party-id> set to the MCPTT ID of the identified MCPTT user called by the remote MCPTT user; and
 - ii) an <anyExt> element containing:
 - A) the <response-type> element set to a value of "remotely-initiated-private-call-response";
 - B) if the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user, a <remotely-initiated-call-outcome> element set to a value of "success"; and
- ...
- 3) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user identified by the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
- 4) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;
- ...
- 4) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 5) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];
- 6) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

- 7) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 8) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
- 9) for the establishment of a private call shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user, according to rules and procedures of IETF RFC 5366 [20];
- ...
- 11) if an end-to-end security context needs to be established and if the MCPTT user is initiating a private call then:
 - a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
 - b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
 - c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
 - d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the invited user as determined by the procedures of clause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];
 - e) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78]; and
 - g) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];
- 12) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in clause 6.2.1 and with a media stream of the offered media-floor control entity;
- 13) if implicit floor control is required, shall comply with the conditions specified in clause 6.4 and:
 - a) if the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true"; and
 - b) if location information has not yet been included in the SIP re-INVITE request;then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element;
- 14) if the MCPTT user is initiating a private call then:
 - a) if force of automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];
 - b) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
 - i) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

- ii) if manual commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Manual" according to the rules and procedures of IETF RFC 5373 [18]; and
- c) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <session-type> element set to a value of "private";

...

17) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

6.2.25.3 Test description

6.2.25.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The MCPTT User is authorized to initiate private calls: the <allow-private-call> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.25.3.2 Test procedure sequence

Table 6.2.25.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1a1 | Void | - | - | - | - |
| 2-3A | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed requesting the establishment of a remotely initiated private call. | - | - | - | - |
| 4 | Void | - | - | - | - |
| 5-7 | Check: Does the UE (MCPTT client) correctly perform steps 2–4 of procedure 'MCX CO private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.35.3-1 requesting the establishment of a private call? NOTE: Any SIP INVITE content in regard to Automatic Commencement Mode, Force of automatic commencement, and Floor Control shall be accepted. | --> | SIP INVITE | 1 | P |
| 8 | Check: Does the UE (MCPTT client) notify the user that a remotely initiated call request has been received causing establishment of a remotely initiated private call? (NOTE 1) | - | - | 1 | F |
| 9-10 | Check: Does the UE (MCPTT client) correctly perform steps 5–6 of procedure 'MCX CO private call establishment with manual commencement' as described in TS 36.579-1 [2] Table 5.3.35.3-1 to complete the call establishment? | - | - | 1 | P |
| 11 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE confirming the progress of the MCPTT remotely initiated private call? | --> | SIP MESSAGE | 1 | F |
| 12 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| 13a 1-15 | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed requesting the establishment of a remotely initiated private call. | - | - | - | - |
| 16-16 C | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a private call? | - | - | 2 | P |
| 17 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 confirming the progress of the remotely initiated private call? | - | - | 2 | P |
| 18 | Void | - | - | - | - |
| 19 | The procedure 'MCX CT call release' as described in TS 36.579-1 [2] Table 5.3.12.3-1 is performed. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.2.25.3.3 Specific message contents

Table 6.2.25.3.3-1: SIP MESSAGE from the SS (Step 2, Table 6.2.25.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.25.3.3-2 | | | |

Table 6.2.25.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.2.25.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | Encrypted <mcptt-calling-user-id> with mcpttURI set to px_MCPTT_ID_User_B | requesting MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | identified MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| anyExt | | | | |
| request-type | "remotely-initiated-private-call-request" | | | |
| notify-remote-user | "false" | | | |
| <p>NOTE 1: The MCPTT-Info requests a remotely initiated private call with the following roles terms of TS 24.379 [9] clause 11.1.7.1:</p> <ul style="list-style-type: none"> - requesting MCPTT user: px_MCPTT_ID_User_B (SS) - remote MCPTT user: px_MCPTT_ID_User_A initiating the call (UE) (contained in the <mcptt-request-uri> per default) - identified MCPTT user: px_MCPTT_ID_User_B (SS; same as requesting MCPTT user) <p>As requesting and identified MCPTT user are the same, the UE shall not send a SIP MESSAGE at step 11 (TS 24.379 [9] clause 11.1.7.2.2).</p> | | | | |

Table 6.2.25.3.3-3: SIP INVITE from the UE (Steps 5, 16, Table 6.2.25.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1; step 2, TS 36.579-1 [2] Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition PRIVATE-CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | any value if presen | NOTE 1 | | |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.2.25.3.3-3A | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.1.3.3-1B | | | |
| <p>NOTE 1: TS 24.379 [9] clause 11.1.7 does not say anything about the commencement mode to be used for remotely initiated private call</p> | | | | |

Table 6.2.25.3.3-3A: SDP message in SIP INVITE (Table 6.2.25.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, INITIAL_SDP_OFFER | | | | |
|---|-------------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description[2] | optional (NOTE 1) | Media description for media control | | |
| media attribute | | a= line attribute = fmtp | | |
| fmtp | | | | |
| format specific parameters | | | | |
| mc_implicit_request | optional (NOTE 1) | | | |
| NOTE 1: Whether the UE (MCPTT client) requests a call with or without Floor control depends on implementation. The SS shall respect the type of Floor control being requested, if requested (see Table 6.2.25.3.3-3C) | | | | |

Table 6.2.25.3.3-3B: MCPTT-Info in SIP INVITE (Table 6.2.25.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition INVITE_REFERER, PRIVATE-CALL | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.2.25.3.3-3C: SIP 200 (OK) from the SS (Steps 9, 16B Table 6.2.25.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1; step 4, TS 36.579-1 [2] Table 5.3.35.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP message | SDP message as described in Table 6.2.25.3.3-3D | | | |

Table 6.2.25.3.3-3D: SDP Message in SIP 200 (OK) (Table 6.2.25.3.3-3B)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER | | | | |
|---|--------------|-------------------------------------|-----------|-------------------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media description [2] | | Media description for media control | | WITH_MEDIACONTROL |

| Condition | Explanation |
|-------------------|---|
| WITH_MEDIACONTROL | The SDP offer sent by the UE at step 5 (Table 6.2.25.3.3-3A) or step 16 (Table 6.2.25.3.3-6) contains a media description for media control. In this case, independent from whether or not the UE implicitly requests a grant, neither IMPLICIT_GRANT_REQUESTED nor IMPLICIT_FLOOR_GRANTED shall be applied |

Table 6.2.25.3.3-4: SIP MESSAGE from the SS (Step 14, Table 6.2.25.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.25.3.3-5 | | | |

Table 6.2.25.3.3-5: MCPTT-Info in SIP MESSAGE (Table 6.2.25.3.3-4)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|--|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | Encrypted <mcptt-calling-user-id> with mcpttURI set to px_MCPTT_ID_User_C | requesting MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | identified MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| request-type | "remotely-initiated-private-call-request" | | | |
| notify-remote-user | "true" | | | |
| <p>NOTE 1: The MCPTT-Info requests a remotely initiated private call with the following roles terms of TS 24.379 [9] clause 11.1.7.1:</p> <ul style="list-style-type: none"> - requesting MCPTT user: px_MCPTT_ID_User_C (SS) - remote MCPTT user: px_MCPTT_ID_User_A initiating the call (UE) (contained in the <mcptt-request-uri> perdefault) - identified MCPTT user: px_MCPTT_ID_User_B (SS; same as requesting MCPTT user) <p>As requesting and identified MCPTT user are different, the UE shall send a SIP MESSAGE at step 17 (TS 24.379 [9] clause 11.1.7.2.2)</p> | | | | |

Table 6.2.25.3.3-6: Void

Table 6.2.25.3.3-7: SIP MESSAGE from the UE(Step 17, Table 6.2.25.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.25.3.3-8 | | | |

Table 6.2.25.3.3-8: MCPTT-Info in SIP MESSAGE (Table 6.2.25.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | The MCPTT ID of the identified MCPTT user (see NOTE 1, Table 6.2.25.3.3-5); encrypted according to NOTE 2 of Table 5.5.3.2.1-1 in TS 36.579-1 [2] | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "remotely-initiated-private-call-response" | | | |
| remotely-initiated-call-outcome | "success" | | | |

Table 6.2.25.3.3-9: SIP BYE from the SS (step 19, Table 6.2.25.3.2-1; step 1, TS 36.579-1 [2] Table 5.3.12.3-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MO_CALL |
|--|

6.2.26 On-network / Private call / Remotely initiated private call / Pre-established session / Client Terminated (CT)

6.2.26.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate private calls, and, according to local policy pre-established sessions are to be used for
remotely initiated private calls }
ensure that {
when { UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated private
call with the MCPTT ID of the identified MCPTT user of the remotely initiated private call set to
the ID of the MCPTT user requesting the call initiation, and, a pre-established session to this User
available, and, the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-
info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false" }
then { UE (MCPTT Client) initiates private call establishment to the requesting User using the
pre-established session, and, does not notify the user that a remotely initiated private call
request to call the identified MCPTT user has been received, and, does not give any indication to
the remote MCPTT user that the remotely initiated private call origination is in progress, and, does
not sent SIP MESSAGE back to the MCPTT user requesting the call initiation }
}

```

(2)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate private calls, and, according to local policy pre-established sessions are to be used for
remotely initiated private calls }
ensure that {
when { UE (MCPTT Client) receives a request for establishment of an MCPTT remotely initiated private
call with the MCPTT ID of the identified MCPTT user of the remotely initiated private call set to ID
different to the ID of the MCPTT user requesting the call initiation, and, a pre-established session
to this User available }
then { UE (MCPTT Client) initiates private call establishment to the requested identified MCPTT
user using the pre-established session, and, sends SIP MESSAGE back to the MCPTT user requesting the
call initiation to confirm the private call initiation }
}

```

6.2.26.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.1.7.2.2, 11.1.1.2.2.1. Unless otherwise stated these are Rel-15 requirements.

[TS 24.379, clause 11.1.7.2.2]

Upon receiving a "SIP MESSAGE request for remotely initiated private call request for terminating client", the MCPTT client:

...

- 2) shall extract the MCPTT ID of the identified MCPTT user from the <mcptt-called-party-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request;
- ...
- 4) if according to local policy pre-established sessions are to be used for remotely initiated private calls and a pre-established session is available, shall invoke the procedures of clause 11.1.1.2.2.1 to originate an MCPTT private call to the identified MCPTT user with the following clarifications:
 - a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":
 - i) shall not indicate to the remote MCPTT user that a remotely initiated private call request to call the identified MCPTT user has been received; and
 - ii) shall not give any indication to the remote MCPTT user that the remotely initiated private call origination is in progress.

Upon completion of the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1, the MCPTT client:

- 1) if:
 - a) the MCPTT ID of the identified MCPTT user is identical to the <mcptt-calling-user-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request: and
 - b) the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user;

then:

- a) shall skip the remaining steps of the current clause;

NOTE: In this case, it is not necessary to send a response to the sender of the remotely initiated private call request as the sender and the terminating party of the successful private call origination are the same user and will be aware of the request's outcome.

- 2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:
 - a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];

- d) shall include in an application/resource-lists+xml MIME body the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
 - e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:
 - i) the <mcptt-called-party-id> set to the MCPTT ID of the identified MCPTT user called by the remote MCPTT user; and
 - ii) an <anyExt> element containing:
 - A) the <response-type> element set to a value of "remotely-initiated-private-call-response";
 - B) if the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user, a <remotely-initiated-call-outcome> element set to a value of "success"; and
- ...
- 3) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user identified by the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and
 - 4) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

[TS 24.379, clause 11.1.1.2.2.1]

Upon receiving a request from an MCPTT user to establish an MCPTT private call within a pre-established session the MCPTT client shall generate a SIP REFER request outside a dialog in accordance with the procedures specified in 3GPP TS 24.229 [4], IETF RFC 4488 [22] and IETF RFC 3515 [25] as updated by IETF RFC 6665 [26] and IETF RFC 7647 [27], with the clarifications given below.

If the MCPTT user is initiating a private call and an end-to-end security context needs to be established the MCPTT client:

- 1) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];
- 2) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
- 3) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- 4) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the invited user as determined by the procedures of clause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];
- 5) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- 6) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78]; and
- 7) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78].

The MCPTT client populates the SIP REFER request as follows:

- 1) shall include the Request-URI set to the public service identity identifying the pre-established session on the MCPTT server serving the MCPTT user;
- 2) shall include the Refer-Sub header field with value "false" according to rules and procedures of IETF RFC 4488 [22];

- 3) shall include the Supported header field with value "norefersub" according to rules and procedures of IETF RFC 4488 [22];
- 4) shall include the option tag "multiple-refer" in the Require header field;
- 5) may include a P-Preferred-Identity header field in the SIP REFER request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 6) shall include a P-Preferred-Service header field set to the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), according to IETF RFC 6050 [9];
- 7) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [25] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [62] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [20], and with the Content-ID header field set to this "cid" URL.
- 8) for the initiation of a private call, shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to the MCPTT ID of the called user, extended with the following URI header fields:

NOTE 1: Characters that are not formatted as ASCII characters are escaped in the following URI header fields

- a) if force of automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];
 - b) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:
 - i) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include an Answer-Mode header field with the value "Automatic" according to rules and procedures of IETF RFC 5373 [18]; and
 - ii) if manual commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include an Answer-Mode header field with the value "Manual" according to rules and procedures of IETF RFC 5373 [18]; and
 - c) shall include in a hname "body" URI header field:
 - i) if the SDP parameters of the pre-established session do not contain a media-level section of a media-floor control entity or if end-to-end security is required for the private call, an application/sdp MIME body containing the SDP parameters of the pre-established session according to 3GPP TS 24.229 [4] with the clarifications given in clause 6.2.1. If implicit floor control is required and the pre-established session was not established with an implicit floor request, then the application/sdp MIME body shall contain an implicit floor request as specified in clause 6.4; and
 - ii) an application/vnd.3gpp.mcptt-info MIME body with the <session-type> element set to "private";
- ...
- 12) shall include a Target-Dialog header field as specified in IETF RFC 4538 [23] identifying the pre-established session; and
 - 13) if:
 - a) implicit floor control is required;
 - b) the pre-established session was not established with an implicit floor request; and
 - c) location information has not yet been included in the SIP REFER request;then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element.

The MCPTT client shall send the SIP REFER request towards the MCPTT server according to 3GPP TS 24.229 [4].

6.2.26.3 Test description

6.2.26.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlining "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The UE has performed procedure 'MCX pre-established session establishment' as specified in TS 36.579-1 [2] clause 5.3.3.
- The MCPTT User is authorized to initiate private calls: the <allow-private-call> element of the <ruleset> element is present in the MCPTT user profile document and is set to "true".
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.2.26.3.2 Test procedure sequence

Table 6.2.26.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--------|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 1 | Void | - | - | - | - |
| 2-3A | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed requesting the establishment of a remotely initiated private call. | - | - | - | - |
| 4 | Void | - | - | - | - |
| 5-5C | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish a remotely initiated private call? | - | - | 1 | P |
| 6 | Check: Does, in the next 5 sec, the UE (MCPTT client) send a SIP MESSAGE confirming the progress of the MCPTT remotely initiated private call? | --> | SIP MESSAGE | 1 | F |
| 6A | Check: Does the UE (MCPTT client) notify the user that a remotely initiated private call has been established? (NOTE 1) | - | - | 1 | F |
| 7 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 8 | The UE (MCPTT client) performs procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.4.3-1. | - | - | - | - |
| 9-11 | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed requesting the establishment of a remotely initiated private call. | - | - | - | - |
| 12-12C | Check: Does the UE (MCPTT client) correctly perform steps 2-5 of procedure 'MCPTT CO call establishment using a pre-established session' as described in TS 36.579-1 [2] table 5.3A.3.3-1 to establish a remotely initiated private call? | - | - | 2 | P |
| 13 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 confirming the progress of the MCPTT remotely initiated private call? | - | - | 2 | P |
| 14 | Void | - | - | - | - |
| 15 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 16 | The UE (MCPTT client) performs procedure 'MCPTT CO call release keeping the pre-established session' as described in TS 36.579-1 [2] table 5.3A.4.3-1. | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

Table 6.2.26.3.2-2: Void

6.2.26.3.3 Specific message contents

Table 6.2.26.3.3-1: SIP MESSAGE from the SS (Step 2, Table 6.2.26.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.26.3.3-2 | | | |

Table 6.2.26.3.3-2: MCPTT-Info in SIP MESSAGE (Table 6.2.26.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|--|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | Encrypted <mcptt-calling-user-id> with mcpttURI set to px_MCPTT_ID_User_B | requesting MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | identified MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| anyExt | | | | |
| request-type | "remotely-initiated-private-call-request" | | | |
| notify-remote-user | "false" | | | |
| <p>NOTE 1: The MCPTT-Info requests a remotely initiated private call with the following roles terms of TS 24.379 [9] clause 11.1.7.1:</p> <ul style="list-style-type: none"> - requesting MCPTT user: px_MCPTT_ID_User_B (SS) - remote MCPTT user: px_MCPTT_ID_User_A initiating the call (UE) (contained in the <mcptt-request-uri> perdefault) - identified MCPTT user: px_MCPTT_ID_User_B (SS; same as requesting MCPTT user) <p>As requesting and identified MCPTT user are the same, the UE shall not send a SIP MESSAGE at step 11 (TS 24.379 [9] clause 11.1.7.2.2).</p> | | | | |

Table 6.2.26.3.3-3: SIP MESSAGE from the SS (Step 10, Table 6.2.26.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition ACCEPT-CONTACT-WITH-MEDIA-FEATURE-TAG | | | | |
|--|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.26.3.3-4 | | | |

Table 6.2.26.3.3-4: MCPTT-Info in SIP MESSAGE (Table 6.2.26.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL | | | | |
|--|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | Encrypted <mcptt-calling-user-id> with mcpttURI set to px_MCPTT_ID_User_C | requesting MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | identified MCPTT user (NOTE 1); encrypted according to NOTE 1 of Table 5.5.3.2.2-1 in TS 36.579-1 [2] | | |
| anyExt | | | | |
| request-type | "remotely-initiated-private-call-request" | | | |
| notify-remote-user | "true" | | | |
| <p>NOTE 1: The MCPTT-Info requests a remotely initiated private call with the following roles terms of TS 24.379 [9] clause 11.1.7.1:</p> <ul style="list-style-type: none"> - requesting MCPTT user: px_MCPTT_ID_User_C (SS) - remote MCPTT user: px_MCPTT_ID_User_A initiating the call (UE) (contained in the <mcptt-request-uri> perdefault) - identified MCPTT user: px_MCPTT_ID_User_B (SS; same as requesting MCPTT user) <p>As requesting and identified MCPTT user are different, the UE shall send a SIP MESSAGE at step 17 (TS 24.379 [9] clause 11.1.7.2.2)</p> | | | | |

Table 6.2.26.3.3-5: SIP MESSAGE from the UE (Step 13, Table 6.2.26.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|-------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.26.3.3-6 | | | |

Table 6.2.26.3.3-6: MCPTT-Info in SIP MESSAGE (Table 6.2.26.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-called-party-id | Encrypted <mcptt-called-party-id> with mcpttURI set to px_MCPTT_ID_User_B | The MCPTT ID of the identified MCPTT user (see NOTE 1, Table 6.2.26.3.3-4); encrypted according to NOTE 2 of Table 5.5.3.2.1-1 in TS 36.579-1 [2] | | |
| anyExt | | The anyExt field may contain other values - these need not be checked | | |
| response-type | "remotely-initiated-private-call-response" | | | |
| remotely-initiated-call-outcome | "success" | | | |

Table 6.2.26.3.3-7: SIP REFER from the UE (steps 5, 12, Table 6.2.26.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-1, condition PRIVATE-CALL | | | | |
|--|---|-----------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | Resource-lists | | |
| MIME-part-body | Resource-lists as described in Table 6.2.26.3.3-8 | | | |

Table 6.2.26.3.3-8: Resource-lists (Table 6.2.26.3.3-7)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition PRE-ESTABLISH, PRIVATE-CALL with the uri attribute of the entry extended with the SIP URI header fields as specified in Table 6.2.26.3.3-9 |
|---|

Table 6.2.26.3.3-9: SIP header fields extending the uri attribute of the resource-lists' single entry (Table 6.2.26.3.3-8)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.12-2, condition PRIVATE-CALL | | | | |
|---|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Answer-Mode | any value if present | NOTE 1 | | |
| body | | | | |
| MIME body part | | SDP Message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 6.2.26.3.3-10 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.2.26.3.3-11 | | | |
| NOTE 1: TS 24.379 [9] clause 11.1.7 does not say anything about the commencement mode to be used for remotely initiated private call. | | | | |

Table 6.2.26.3.3-10: SDP Message in SIP REFER (Table 6.2.26.3.3-9)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition PRIVATE-CALL, SDP_OFFER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL |
|---|

Table 6.2.26.3.3-11: MCPTT-Info in SIP REFER (Table 6.2.26.3.3-9)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1, condition PRIVATE-CALL |
|---|

Table 6.2.26.3.3-11A: SIP 200 (OK) from the SS (steps 5, 12, Table 6.2.26.3.2-1; step 3, TS 36.579-1 [2] Table 5.3A.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition REFER-RSP, PRIVATE-CALL | | | | |
|---|-----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | | | | |
| media-type | "application/sdp" | | | |
| Message-body | | | | |
| SDP message | As described in Table 6.2.8.3.3-4 | | | |

Table 6.2.26.3.3-11B: SDP Message in SIP 200 (OK) (Table 6.2.26.3.3-11A)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, PRE_ESTABLISHED_SESSION, WITHOUT_FLOORCONTROL

Table 6.2.26.3.3-12: Connect (Steps 5B, 12B, Table 6.2.26.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.6.12-1, condition PRIVATE-CALL, WITHOUT_FLOORCONTROL, ACK

6.3 Location

6.3.1 On-network / Location / Event Triggered Location Information report

6.3.1.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorized for MCPTT service **and** not in an emergency state **and** having received a location information configuration message providing configuration parameters for *NonEmergencyLocationInformation* requesting indication of ESGIs and location information, and, TriggeringCriteria set to Cell change, and, a none zero *minimumReportInterval* timer }
ensure that {
 when { UE moves to a different cell }
 then { UE (MCPTT Client) sends location report obeying the set in the location configuration parameters for *NonEmergencyLocationInformation* including waiting for the expiry of *minimumIntervalLength* timer for before reporting }
 }

(2)

with { UE (MCPTT Client) registered and authorized for MCPTT service **and** not in an emergency state **and** having received a location information configuration message providing configuration parameters for *NonEmergencyLocationInformation* requesting indication of ESGIs and location information, and, TriggeringCriteria set to PLMN change and PERIODIC, and, a none zero *minimumReportInterval* timer }
ensure that {
 when { UE moves to a cell belonging to different however allowed for communication PLMN }
 then { UE (MCPTT Client) sends location report obeying the set in the location configuration parameters for *NonEmergencyLocationInformation* and resets all triggers }
 }

(3)

with { UE (MCPTT Client) registered and authorized for MCPTT service **and** having received a location information configuration message providing configuration parameters for *NonEmergencyLocationInformation* requesting indication of ESGIs and location information, and, TriggeringCriteria set to PLMN change and PERIODIC, and, a none zero *minimumReportInterval* timer }
ensure that {
 when { when the PERIODIC trigger fires up }
 then { UE (MCPTT Client) sends location report obeying the set in the location configuration parameters for *NonEmergencyLocationInformation* }
 }

6.3.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clause 13.3.2, 13.3.4.1, 13.3.4.2. Unless otherwise stated, these are Rel-13 requirements.

[TS24.379 clause 13.3.2]

Upon receiving a SIP MESSAGE request containing:

- 1) an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref set to the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";

- 2) a Content-Type header field set to "application/vnd.3gpp.mcptt-location-info+xml"; and
- 3) an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Configuration> root element included in the <location-info> root element;

then the MCPTT client:

- 1) shall store the contents of the <Configuration> elements;
- 2) shall set the location reporting triggers accordingly; and
- 3) shall start the minimumReportInterval timer.

[TS 24.379 clause 13.3.4.1]

If a location reporting trigger fires the MCPTT client checks if the minimumReportInterval timer is running. If the timer is running the MCPTT client waits until the timer expires. When the minimumReportInterval timer fires, the MCPTT client:

- 1) shall, if any of the reporting triggers are still true, send a location information report as specified in subclause 13.3.4.2.

[TS 24.379 clause 13.3.4.2]

If the MCPTT client does not need to send a SIP request for other reasons, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33]. The MCPTT client:

- 1) shall include in the Request-URI, the SIP URI received in the P-Asserted-Identity header field in the received SIP MESSAGE request for location report configuration;
- 2) shall include a Content-Type header field set to "application/vnd.3gpp.mcptt-location-info+xml";
- 3) shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body and in the <location-info> root element include:
 - a) a <Report> element and if the Report was triggered by a location request include the <ReportID> attribute set to the value of the <RequestID> attribute in the received Request;
 - b) a <TriggerId> child element set to the value of each <Trigger-Id> value of the triggers that have fired; and
 - c) the location reporting elements corresponding to the triggers that have fired;
- 4) shall include an Accept-Contact header field with the media feature tag g.3gpp.mcptt along with parameters "require" and "explicit" in accordance with IETF RFC 3841 [6];
- 5) shall set the minimumReportInterval timer to the minimumReportInterval time and start the timer;
- 6) shall reset all triggers; and
- 7) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [4].

6.3.1.3 Test description

6.3.1.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 and Cell 2 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document). The simulated Cell 4 shall belong to PLMN2. Which cell is simulated at which time and with what power is described in TS 36.579-1 [2], clause 5.4.9 'MCX communication in E-UTRA / Change of cells' which is called during the test sequence.

- GNSS simulator to simulate a location.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 to provide a location, as defined in TS 36.508 [24] Table 4.11.2-2, step 1 of scenario #4.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.3.1.3.2

Test procedure sequence

Table 6.3.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|---|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 0 | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2], clause 5.4.4 'MCX CT communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 1 | The SS sends a location reporting configuration containing the cell change trigger criteria and the minimum report interval. Provision of serving and neighbouring cells ECGIs is requested in addition to the Location Information. The <i>minimumReportInterval</i> time is set to 25 sec. | <-- | SIP MESSAGE | - | - |
| 1A | SS starts timer=25 sec (the non-emergency <i>minimumReportInterval</i> interval length defined in the SIP MESSAGE sent in step 1). | - | - | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection | - | - | - | - |
| 1B | Trigger the GNSS simulator to start step 2 of Scenario #4 to simulate the UE moving to location #7 inside Geographical area #1 as defined in TS 36.508 [24] Table 4.11.2-2. | - | - | - | - |
| 1C | Wait 10 sec to allow the simulated location to move approximately 100 m from the original location to location #7. | - | - | - | - |
| 2 | Make the SS simulate cell change (same PLMN). The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.9 'MCX communication in E-UTRA / Change of cells' steps 1 and 2. The test sequence below shows only the MCPTT relevant messages exchanged. NOTE: Cell 2 and Cell 1 will be active. | - | - | - | - |
| 2A | Timer=25 sec expires. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2], clause 5.4.3 'MCX CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing the Cell change trigger identification along with the location information report, the current location coordinates as specified in step 1B, and, the ECGIs of Cells 1 and 2? | --> | SIP MESSAGE | 1 | P |
| 4-8 | Void | - | - | - | - |
| 9 | The SS sends a location reporting configuration containing the PLMN change trigger criteria, and, periodic trigger criteria with <i>PeriodicReport</i> reporting interval set to 60 sec and the minimum report interval. Provision of cells ECGIs is requested in addition to the Location Information. The <i>minimumReportInterval</i> time is set to 10 sec. | <-- | SIP MESSAGE | - | - |

| | | | | | |
|-----|--|-----|-------------|---|---|
| 9A | SS starts timer=60 sec (the <i>PeriodicReport</i> interval defined in the SIP MESSAGE sent in step 9). NOTE: The value of 60 sec has been chosen arbitrary however if the behaviour described in steps 9B-11 takes longer than 60 sec then this value needs to be adjusted. | - | - | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection | - | - | - | - |
| 9B | Trigger the GNSS simulator to start step 4 of Scenario #4 to simulate the UE moving to location #8 inside Geographical area #1 as defined in TS 36.508 [24] Table 4.11.2-2. | - | - | - | - |
| 9C | Wait 10 sec to allow the simulated location to move approximately 100 m from the original location to location #8. | - | - | - | - |
| 10 | Make the SS simulate PLMN change. The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.9 'MCX communication in E-UTRA / Change of cells' steps 3 and 4. The test sequence below shows only the MCPTT relevant messages exchanged. NOTE: Cell 4 only will be active. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2], clause 5.4.3 'MCX CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 11 | Check: Does the UE (MCPTT client) send (NOTE) a SIP MESSAGE containing the PLMN change trigger identification along with the location information report, the current location coordinates as specified in step 9B, and the ECGI of cell 4 (the only cell being active at this moment of time)? NOTE: The <i>minimumReportInterval</i> time (set in step 9) has already expired latest at the end of step 9B. | --> | SIP MESSAGE | 2 | P |
| 11A | SS cancels Timer=60. | - | - | - | - |
| 11B | SS starts Timer=60. | - | - | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection | - | - | - | - |
| 12 | Void. | - | - | - | - |
| 13 | Timer=60 sec expires | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2], clause 5.4.3 'MCX CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 14 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing the periodic trigger identification along with location information report after the non-emergency minimum interval length expired? NOTE: The <i>minimumReportInterval</i> time (set in step 9) has already expired before step 13. | --> | SIP MESSAGE | 3 | P |
| - | EXCEPTION: SS releases the E-UTRA connection | - | - | - | - |

6.3.1.3.3 Specific message contents

Table 6.3.1.3.3-1: SIP MESSAGE (Step 1, Table 6.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | MIME body not including MCPTT-Info and not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type being "application/vnd.3gpp.mcptt-info+xml" or "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | Location info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-2 | | | |

Table 6.3.1.3.3-2: Location-Info in SIP MESSAGE (Table 6.3.1.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.2-1 | | | | |
|---|--------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Configuration | | | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | present | Provision of information in the report is requested. | | |
| NeighbouringEcgi | present | Provision of information in the report is requested. | | |
| MbmsSald | not present | Provision of information in the report is not requested. | | |
| MbsfnArea | not present | Provision of information in the report is not requested. | | |
| GeographicalCoordinate | present | | | |
| minimumIntervalLength | "25" | the value in seconds | | |
| EmergencyLocationInformation" | | | | |
| ServingEcgi | present | Provision of information in the report is requested. | | |
| NeighbouringEcgi | present | Provision of information in the report is requested. | | |
| MbmsSald | not present | Provision of information in the report is not requested. | | |
| MbsfnArea | not present | Provision of information in the report is not requested. | | |
| GeographicalCoordinate | present | Provision of information in the report is requested. | | |
| minimumIntervalLength | "30" | the value in seconds | | |
| TriggeringCriteria | | | | |
| CellChange | | | | |
| AnyCellChange | | | | |
| TriggerID | "CELLCHANGE" | | | |

Table 6.3.1.3.3-3: SIP MESSAGE (Step 3, Table 6.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|--|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | MIME body not including MCPTT-Info and not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type being "application/vnd.3gpp.mcptt-info+xml" or "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | Location info | TS 24.379 [9] clause F.3 | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-4 | | | |

Table 6.3.1.3.3-4: Location-Info in SIP MESSAGE (Table 6.3.1.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|---|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| TriggerID | "CELLCHANGE" | | | |
| CurrentLocation | | | | |
| CurrentServingEcgi | The E-UTRAN Cell Global Identification (ECGI) of Cell 2 | | | |
| NeighbouringEcgi | The ECGI of Cell 1 | | | |
| CurrentCoordinate | | The location simulated by the GNSS simulator at the time of transmission of the message. | | |
| longitude | The longitude value as specified for location number #7 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00016 degrees. | | | |
| latitude | The latitude value as specified for location number #7 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00013 degrees. | | | |
| ReportType | "NonEmergency" | | | |

Table 6.3.1.3.3-5 to 8: Void

Table 6.3.1.3.3-9: SIP MESSAGE (Step 9, Table 6.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|--|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | MIME body not including MCPTT-Info and not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type being "application/vnd.3gpp.mcptt-info+xml" or "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | Location info | TS 24.379 [9] clause F.3 | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-10 | | | |

Table 6.3.1.3.3-10: Location-Info in SIP MESSAGE (Table 6.3.1.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.2-1 | | | | |
|---|--------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Configuration | | | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | present | Provision of information in the report is requested. | | |
| NeighbouringEcgi | present | Provision of information in the report is requested. | | |
| MbmsSald | not present | Provision of information in the report is not requested. | | |
| MbsfnArea | not present | Provision of information in the report is not requested. | | |
| GeographicalCoordinate | present | Provision of information in the report is requested. | | |
| minimumIntervalLength | "10" | the value in seconds | | |
| EmergencyLocationInformation" | | | | |
| ServingEcgi | present | Provision of information in the report is requested. | | |
| NeighbouringEcgi | present | Provision of information in the report is requested. | | |
| MbmsSald | not present | Provision of information in the report is not requested. | | |
| MbsfnArea | not present | Provision of information in the report is not requested. | | |
| GeographicalCoordinate | present | Provision of information in the report is requested. | | |
| minimumIntervalLength | "70" | the value in seconds | | |
| TriggeringCriteria | | | | |
| PLMNChange | | | | |
| AnyPLMNChange | | | | |
| TriggerID | "ANY PLMN" | | | |
| PeriodicReport | | | | |
| extension base | "60" | the value in seconds of the time which determines the periodic provision of the report | | |
| TiggerID | "PERIODIC" | | | |

Table 6.3.1.3.3-11: SIP MESSAGE (Step 11, Table 6.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|--|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | "multipart/mixed;boundary="any allowed value" | | | |
| Content-Length | length of message body | | | |
| Message-body | | | | |
| MIME-Content-Type | not present | "application/vnd.3gpp.mcptt-info+xml" | | |
| MIME-Content-Type | not present | "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | "application/vnd.3gpp.mcptt-affiliation-command+xml" | TS 24.379 [9] clause F.3 | |
| Location-Info | As described in Table 6.3.1.3.3-12 | | | |

Table 6.3.1.3.3-12: Location-Info in SIP MESSAGE (Table 6.3.1.3.3-11)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|---|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| TriggerID | "ANY PLMN" | | | |
| CurrentLocation | | | | |
| CurrentServingEcgi | The ECGI of Cell 4 | | | |
| NeighbouringEcgi | not present | Only Cell 4 is active at this moment of time (see TS 36.579-1 [2], clause 5.4.9) | | |
| CurrentCoordinate | | The location simulated by the GNSS simulator at the time of transmission of the message. | | |
| longitude | The longitude value as specified for location number #8 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00016 degrees. | | | |
| latitude | The latitude value as specified for location number #8 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00013 degrees. | | | |
| ReportType | "NonEmergency" | | | |

Table 6.3.1.3.3-13: SIP MESSAGE (Step 14, Table 6.3.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|--|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Content-Type | "multipart/mixed;boundary="any allowed value" | | | |
| Content-Length | length of message body | | | |
| Message-body | | | | |
| MIME-Content-Type | not present | "application/vnd.3gpp.mcptt-info+xml" | | |
| MIME-Content-Type | not present | "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | "application/vnd.3gpp.mcptt-affiliation-command+xml" | TS 24.379 [9] clause F.3 | |
| Location-Info | As described in Table 6.3.1.3.3-14 | | | |

Table 6.3.1.3.3-14: Location-Info in SIP MESSAGE (Table 6.3.1.3.3-13)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|---|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| TriggerID | "PERIODIC" | | | |
| CurrentLocation | | | | |
| CurrentServingEcgi | The ECGI of Cell 4 | | | |
| NeighbouringEcgi | not present | | | |
| CurrentCoordinate | | The location simulated by the GNSS simulator at the time of transmission of the message. | | |
| longitude | The longitude value as specified for location number #8 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00016 degrees. | | | |
| latitude | The latitude value as specified for location number #8 defined in TS 36.508 [24] Table 4.11.2-3 +/- 0.00013 degrees. | | | |
| ReportType | "NonEmergency" | | | |

6.3.2 On-network / Location/ On-demand Location Information Request

6.3.2.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorized for MCPTT service **and** not in an emergency state **and** having received a location information configuration message providing configuration parameters for both NonEmergencyLocationInformation and EmergencyLocationInformation }
ensure that {

when { UE (MCPTT Client) receives a location information request before the minimumReportInterval timer has expired }

then { UE (MCPTT Client) does not wait for the minimumReportInterval timer to expire, and, sends "immediately" a SIP MESSAGE containing location information report including information in

accordance with the NonEmergencyLocationInformation configuration and the <ReportID> attribute set to the value of the <RequestID> attribute in the received Request, **and**, resets the *minimumReportInterval* timer }

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT service and not in an emergency state
and having received a location information configuration message }
ensure that {
  when { UE (MCPTT Client) receives a new location information configuration message and ConfigScope
set to 'Full' }
  then { UE (MCPTT Client) stores the contents of the <Configuration> elements thereby overriding
the previous configuration }
}
```

6.3.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 13.3.1, 13.3.2, 13.3.3, 13.3.4.2, F.3.3. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379 clause 13.3.2]

The MCPTT client sends a location report when one of the trigger criteria is fulfilled or when it receives a request from the participating MCPTT function to send a location report. To send the location report the MCPTT client can use an appropriate SIP message that it needs to send for other reasons, or it can include the location report in a SIP MESSAGE request.

To send a location report, the MCPTT client includes in the SIP MESSAGE request an application/vnd.3gpp.mcptt-location-info+xml MIME body as specified in clause F.3. The MCPTT client populates the elements in accordance with its reporting configuration. Further location information may also be included in the P-Access-Network-Info header field.

[TS 24.379 clause 13.3.2]

Upon receiving a SIP MESSAGE request containing:

- 1) an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref set to the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";
- 2) a Content-Type header field set to "application/vnd.3gpp.mcptt-location-info+xml"; and
- 3) an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Configuration> root element included in the <location-info> root element;

then the MCPTT client:

- 1) shall store the contents of the <Configuration> elements;
- ...
- 3) shall start the minimumReportInterval timer.

[TS 24.379 clause 13.3.3]

Upon receiving a SIP MESSAGE request containing

- 1) an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref set to the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";
- 2) a Content-Type header field set to "application/vnd.3gpp.mcptt-location-info+xml"; and
- 3) an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Request> element included in the <location-info> root element;

then the MCPTT client:

- 1) shall send a location report as specified in subclause 13.3.4; and

- 2) shall reset the minimumReportInterval timer.

[TS 24.379 clause 13.3.4.2]

If the MCPTT client does not need to send a SIP request for other reasons, the MCPTT client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33]. The MCPTT client;

- 1) shall include in the Request-URI, the SIP URI received in the P-Asserted-Identity header field in the received SIP MESSAGE request for location report configuration;
- 2) shall include a Content-Type header field set to "application/vnd.3gpp.mcptt-location-info+xml";
- 3) shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body and in the <location-info> root element include:
 - a) a <Report> element and if the Report was triggered by a location request include the <ReportID> attribute set to the value of the <RequestID> attribute in the received Request;
- ...
- 4) shall include an Accept-Contact header field with the media feature tag g.3gpp.mcptt along with parameters "require" and "explicit" in accordance with IETF RFC 3841 [6];
- 5) shall set the minimumReportInterval timer to the minimumReportInterval time and start the timer;
- ...
- 7) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [4].

[TS 24.379 clause F.3.3]

<Configuration> element has a <ConfigScope> attribute that can assume the values "Full" and "Update". The value "Full" means that the <Configuration> element contains the full location configuration which replaces any previous location configuration. The value "Update" means that the location configuration is in addition to any previous location configuration. To remove configuration elements a "Full" configuration is needed. The <Configuration> element contains the following child elements:

6.3.2.3 Test description

6.3.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 and Cell 2 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state on Cell 1 (Serving cell).
- The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.3.2.3.2

Test procedure sequence

Table 6.3.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|--|------------------|-------------|----|---------|
| | | U - S | Message | | |
| 0 | Void. | - | - | - | - |
| 1-1AB | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed to configure location reporting with <i>minimumReportInterval</i> timer set to 20s and <i>PeriodicReport</i> reporting interval set to 15s. NOTE: The handling of the <i>PeriodicReport</i> is not tested in this test. It is added here for the purpose of verifying that the UE restarts the <i>minimumReportInterval</i> – when the Periodic report trigger fires before the expiration of the <i>minimumReportInterval</i> the UE needs to wait for its expiry before sending the periodic report. | - | - | - | - |
| 1A | Start timer <i>t_Wait</i> =10s (NOTE 1) | - | - | - | - |
| 1B | Start timer <i>t_PeriodicReport</i> =15s (<i>PeriodicReport</i> timer set in step 1). | - | - | - | - |
| - | EXCEPTION: The SS waits 2 seconds before it releases the RRC connection | - | - | - | - |
| 1C | <i>t_Wait</i> expires. | - | - | - | - |
| 2-2B | Steps 1a1-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed to request a location report. | - | - | - | - |
| 3-3AA | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 before <i>t_PeriodicReport</i> expires to provide location information for the NonEmergencyLocationInformation configured at step 1? | - | - | 1 | P |
| 3A | Start timer <i>t_MinimumReportInterval</i> =20s | - | - | - | - |
| 3B | Stop timer <i>t_PeriodicReport</i> | - | - | - | - |
| - | EXCEPTION: The SS waits 2 seconds before it releases the RRC connection | - | - | - | - |
| 3C | Void. | - | - | - | - |
| 3D | <i>t_MinimumReportInterval</i> expires | - | - | - | - |
| 3E-3G | Check: Does the UE (MCPTT client) correctly perform steps 1a1-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 to provide periodic location information? | - | - | 1 | P |
| 4-4A | Steps 2-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed to remove the periodic trigger criteria from the location reporting configuration. | - | - | - | - |
| 5-5A | Steps 2-3 of procedure 'MCX SIP MESSAGE CT' as described in TS 36.579-1 [2] Table 5.3.33.3-1 are performed to request a location report. | - | - | - | - |
| 6-6A | Check: Does the UE (MCPTT client) correctly perform steps 2-3 of procedure 'MCX SIP MESSAGE CO' as described in TS 36.579-1 [2] Table 5.3.32.3-1 to provide location information for the configuration done at steps 4-4A? | - | - | 2 | P |
| 7-8 | Void. | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) send any SIP MESSAGE in the next 25s? | --> | SIP MESSAGE | 2 | F |
| - | EXCEPTION: The SS waits 2 seconds before it releases the RRC connection | - | - | - | - |

NOTE 1: The value of 10s is arbitrary chosen. However, it needs to be long enough to ensure that if the UE did not reset the minimumReportInterval timer after it sent the message in step 3 the UE will send the SIP MESSAGE for the periodic reporting before step 3D and will fail, and, it needs to be short enough so that step 2 happens reasonably before t_PeriodicReport expires.

6.3.2.3.3 Specific message contents

Table 6.3.2.3.3-1: SIP MESSAGE from the SS (Step 1, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition LOCATION-CONFIG | | | | |
|--|---|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-info as described in Table 6.3.1.3.3-13 | | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-2 | | | |

Table 6.3.2.3.3-2: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.2-1 | | | | |
|---|--------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Configuration | | | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | not present | | | |
| NeighbouringEcgi | not present | | | |
| MbmsSald | not present | | | |
| MbsfnArea | not present | | | |
| GeographicalCoordinate | present | Provision of <GeographicalCoordinate> in the report is requested. | | |
| minimumIntervalLength | "20" | | | |
| TriggeringCriteria | | | | |
| PeriodicReport | | | | |
| extension base | "15" | periodicity of the reports (in seconds) | | |
| TiggerID | "PERIODIC" | | | |

Table 6.3.2.3.3-3: SIP MESSAGE from the SS (Step 2, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition LOCATION-INFO | | | | |
|--|---|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-info as described in Table 6.3.1.3.3-13 | | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-4 | | | |

Table 6.3.2.3.3-4: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-3)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.3-1 | | | | |
|---|--|--|--|--|
|---|--|--|--|--|

Table 6.3.2.3.3-5: SIP MESSAGE from the UE (Step 3, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition LOCATION_REPORT | | | | |
|--|---|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | Not present | MCPTT-Info | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-6 | | | |

Table 6.3.2.3.3-6: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-5)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1, condition LOCATION-INFO | | | | |
|--|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| ReportID attribute | "1" | The same as the ID in the request message. | | |
| ReportType attribute | "NonEmergency" | | | |
| CurrentLocation | | Information corresponding to the location reporting configuration of table 6.3.2.3.3-2 | | |
| CurrentServingEcgi | not present | | | |
| NeighbouringEcgi | not present | | | |
| MbmsSald | not present | | | |
| MbsfnArea | not present | | | |
| CurrentCoordinate | | | | |
| longitude | Encrypted <longitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |
| latitude | Encrypted <latitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |

Table 6.3.2.3.3-6A: SIP MESSAGE from the UE (Step 3E, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition LOCATION-INFO | | | | |
|--|--|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | Not present | MCPTT-Info | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-6B | | | |

Table 6.3.2.3.3-6B: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-6A)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Report | | | | |
| ReportType attribute | "NonEmergency" | | | |
| TriggerID | "PERIODIC" | | | |
| CurrentLocation | | Information corresponding to the location reporting configuration of table 6.3.2.3.3-2 | | |
| CurrentServingEcgi | not present | | | |
| NeighbouringEcgi | not present | | | |
| MbmsSald | not present | | | |
| MbsfnArea | not present | | | |
| CurrentCoordinate | | | | |
| longitude | Encrypted <longitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |
| latitude | Encrypted <latitude> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |

Table 6.3.2.3.3-7: SIP MESSAGE from the SS (Step 4, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition LOCATION-CONFIG | | | | |
|--|---|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-info as described in Table 6.3.1.3.3-13 | | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-8 | | | |

Table 6.3.2.3.3-8: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.2-1 | | | | |
|---|--------------|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Configuration | | | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | present | Provision of <ServingEcgi> in the report is requested. | | |
| NeighbouringEcgi | not present | | | |
| MbmsSald | not present | | | |
| MbsfnArea | not present | | | |
| GeographicalCoordinate | not present | | | |

Table 6.3.2.3.3-9: SIP MESSAGE from the SS (Step 5, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.33.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition LOCATION-INFO | | | | |
|--|--|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-info as described in Table 6.3.1.3.3-13 | | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-10 | | | |

Table 6.3.2.3.3-10: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.3-1 | | | | |
|---|--------------|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | | | | |
| Request | | | | |
| RequestID | "2" | The RequestID that the MCPTT client shall reference in the Report | | |

Table 6.3.2.3.3-11: SIP MESSAGE from the UE (Step 6, Table 6.3.2.3.2-1; step 2, TS 36.579-1 [2], Table 5.3.32.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition LOCATION_REPORT | | | | |
|--|--|----------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | Not present | MCPTT-Info | | |
| MIME body part | | Location-info | TS 24.379 [9] clause F.3 | |
| MIME-part-body | Location-info as described in Table 6.3.1.3.3-12 | | | |

Table 6.3.2.3.3-12: Location-Info in SIP MESSAGE (Table 6.3.2.3.3-11)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.4.1-1 | | | | |
|---|---|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| location-info | present | | | |
| Report | present | | | |
| ReportID | "2" | The same as the ID in the request message. | | |
| ReportType | "NonEmergency" | | | |
| CurrentLocation | present | Information corresponding to the location reporting configuration of table 6.3.2.3.3-8 | | |
| CurrentServingEcgi | Encrypted <CurrentServingEcgi> with any content | Encryption according to NOTE 1 in TS 36.579-1 [2] Table 5.5.3.4.1-1 | | |
| NeighbouringEcgi | not present | | | |
| MbmsSald | not present | | | |
| MbsfnArea | not present | | | |
| CurrentCoordinate | not present | | | |

Table 6.3.2.3.3-13: MCPTT-Info in SIP MESSAGE (Table 6.3.2.3.3-1, 6.3.2.3.3-3, 6.3.2.3.3-7, 6.3.2.3.3-9)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-1 | | | | |
|---|--------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-calling-user-id | not present | | | |

6.4 MBMS

6.4.1 On-network / MBMS / MBMS Bearer Announcement / MBMS Bearer Listening Status / Transition to MBMS from Unicast / MBMS Floor Control / Transition to Unicast from MBMS

6.4.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives MBMS bearer announcements via SIP MESSAGE messages }
  then { UE (MCPTT Client) responds by sending a SIP 200 (OK) to the SIP MESSAGE message and the UE (MCPTT Client) sends an MBMS listening status message via SIP MESSAGE }
}
```

(2)

```
with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with Automatic Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives MBMS subchannel control messages }
  then { UE (MCPTT Client) responds by sending an MBMS listening status message via SIP MESSAGE }
}
```

(3)

```
with { UE (MCPTT Client) listening to the MBMS subchannel during an ongoing MCPTT On-demand Pre-arranged Group Call }
ensure that {
```

```

when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server on the MBMS
subchannel (Floor Taken and Floor Idle) and continues to respect floor control imposed by the MCPTT
Server via unicast (Floor Ack and Floor Release)}
}

```

(4)

```

with { UE (MCPTT Client) no longer listening to the MBMS subchannel during an ongoing MCPTT On-
demand Pre-arranged Group Call }
ensure that {
when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
then { UE (MCPTT Client) respects floor control imposed by the MCPTT Server via unicast (Floor
Idle)}
}

```

(5)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
when { the UE (MCPTT Client) receives an explicit MuSiK download message }
then { UE (MCPTT Client) sends a 200 OK response to accept the key and associates the key with
the group}
}

```

6.4.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clause 14.3.3.2, TS 24.380, clauses 10.3.2, 10.3.3, 10.3.4, 6.2.4.3.5, 6.2.4.5.3, 6.2.4.4.2, 6.2.4.3.2. Unless otherwise stated, these are Rel-13 requirements.

[TS 24.379, clause 14.3.3.2]

When the MCPTT client wants to report the MBMS bearer listening status, the MCPTT client:

NOTE 1: The application/vnd.3gpp.mcptt-mbms-usage-info+xml can contain both the listening status "listening" and "not listening" at the same time.

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33]; and
- 2) the SIP MESSAGE request:
 - a) shall include in the Request-URI the MBMS public service identity of the participating MCPTT function received in the P-Asserted-Identity header field of the announcement message;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media-feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
 - c) should include a public user identity in the P-Preferred-Identity header field as specified in 3GPP TS 24.229 [4];
 - d) shall include a P-Preferred-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";
 - e) shall include an application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body with the <version> element set to "1";
 - f) if the MCPTT client is listening to the MBMS bearer, the application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body:
 - i) shall include an <mbms-listening-status> element set to "listening";
 - ii) if the intention is to report that the MCPTT client is listening to the MBMS subchannel for an ongoing conversation in a session (e.g. as the response to the Map Group To Bearer message), shall include the MCPTT session identity of the ongoing conversation in <session-identity> element;
 - iii) shall include one or more <TGMI> elements for which the listening status applies; and

- iv) if the intention is to report that the MCPTT client is listening to the general purpose MBMS subchannel, shall include the <general-purpose> element set to "true";
- g) if the MCPTT client is not listening, the application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body:
 - i) shall include an <mbms-listening-status> element set to "not-listening";
 - ii) shall include one or more <TGMI> elements for which the listening status applies;
 - iii) if the intention is to report that the MCPTT client is no longer listening to the MBMS subchannel in an ongoing session (e.g. as the response to Unmap Group to Bearer message), shall include the MCPTT session identity in <session-identity> elements; and
 - iv) if the intention is to report that the MCPTT client is no longer listening to general purpose MBMS subchannel, shall include the <general-purpose> element set to "false"; and

NOTE 2: If the MCPTT client reports that the MCPTT client is no longer listening to the general purpose MBMS subchannel, it is implicitly understood that the MCPTT client no longer listens to any MBMS subchannel in ongoing conversations that the MCPTT client previously reported status "listening".

- h) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-request-uri> set to the MCPTT ID; and
- 3) shall send the SIP MESSAGE request according to 3GPP TS 24.229 [4].

[TS 24.380, clause 10.3.2]

When receiving a Map Group To Bearer message over the general purpose MBMS subchannel, the MBMS interface in the MCPTT client:

1. shall associate the TMGI in the TMGI field, the MBMS subchannel for audio and for floor control with the MCPTT group identity in the MCPTT Group ID field.

[TS 24.380, clause 10.3.3]

If the MBMS interface receives RTP media packets or floor control messages over the MBMS subchannel, the MBMS interface in the MCPTT client:

1. if there is an association between the TMGI, the MBMS subchannel for audio and for floor control to an ongoing conversation in a group session:
 - a. shall forward the received floor control messages to the floor participant in the conversation; and
 - b. if the received RTP medias contains a different SSRC value than the SSRC value used by the MCPTT client, shall forward the received RTP packets to the media mixer in the conversation; and
2. if there is no such association:
 - a. shall ignore the received floor control message or received RTP media packet.

[TS 24.380, clause 10.3.4]

When receiving the Unmap Group To Bearer message over a MBMS subchannel, the MBMS interface in the MCPTT client:

1. shall remove the association between the TMGI, the MBMS subchannel for audio and for floor control from the conversation in the group session identified by the MCPTT Group ID field, if such an association exists.

[TS 24.380, clause 6.2.4.3.5]

Upon receiving an indication from the user to request permission to send media, the floor participant:

1. shall send the Floor Request message toward the floor control server; The Floor Request message:
 - a. if a different priority than the normal priority is required, shall include the Floor Priority field with the priority not higher than negotiated with the floor control server as specified in subclause 14.3.3; and

- b. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1; and
3. shall enter the 'U: pending Request' state.

[TS 24.380, clause 6.2.4.5.3]

Upon receiving an indication from the user to release the permission to send RTP media, the floor participant:

1. shall send a Floor Release message towards the floor control server The Floor Release message:
 - a. may include the first bit in the subtype of the Floor Release message set to '1' (acknowledgement is required) as specified in subclause 8.2.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

- b. if the session is a broadcast call and if the session was established as a normal call, shall include the Floor Indicator with the A-bit set to '1' (Normal call); and
- c. if the Floor Granted message included the G-bit set to '1' (Dual floor), shall include the Floor Indicator with the G-bit set to '1' (Dual floor);
2. shall remove the indication that the participant is overriding without revoke if this indication is stored;
3. shall remove the indication that the participant is overridden without revoke if this indication is stored;
4. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
5. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in an SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

[TS 24.380, clause 6.2.4.3.2]

Upon receiving a Floor Idle message, the participant:

1. if the first bit in the subtype of the Floor Idle message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:

- a. shall include the Message Type field set to '5' (Floor Idle); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide floor idle notification to the user, if it has not already done so;
 3. shall stop the optional timer T103 (End of RTP media), if it is running; and
 4. shall remain in the 'U: has no permission' state.

6.4.1.3 Test description

6.4.1.3.1 Pre-test conditions

System Simulator:

- Void

IUT:

- Void

Preamble:

- A pre-activated MBMS bearer exists

6.4.1.3.2

Test procedure sequence

Table 6.4.1.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|---------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and without implicit floor request. (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2], clause 5.4.3 'MCX CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 2 | The UE (MCPTT client) sends an initial SIP INVITE request requesting the establishment of a group call with automatic commencement mode and floor control, | --> | SIP INVITE | - | - |
| 3 | The SS sends a SIP 100 Trying | <-- | SIP 100 Trying | - | - |
| 4 | The SS sends a SIP 180 Ringing | <-- | SIP 180 Ringing | - | - |
| 5 | The SS sends a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 6 | The UE (MCPTT client) sends a SIP ACK. | --> | SIP ACK | - | - |
| 7 | The UE (MCPTT client) notifies the user that the call has been established. (NOTE 1) | - | - | - | - |
| 8 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 9 | The procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1 is performed. | - | - | - | - |
| 10-11 | Void | - | - | - | - |
| 12 | The SS pre-activates an MBMS bearer and sends a SIP MESSAGE containing an MBMS bearer announcement message to announce the availability of an MBMS bearer. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | SIP MESSAGE | - | - |
| 13 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 1 | P |
| 14 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 1 | P |
| 15 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 16 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 17 | The UE (MCPTT client) sends a Floor Request message. | --> | Floor Request | - | - |
| 18 | The SS decides that a MBMS subchannel shall be used for the conversation and sends a Map Group To Bearer message over the general purpose MBMS subchannel. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | Map Group To Bearer | - | - |
| 19 | Check: Does the UE (MCPTT client) respond to the Map Group To Bearer message by sending a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 2 | P |
| 20 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |

| | | | | | |
|------|--|-----|-----------------------|---|---|
| 21 | The SS sends a Floor Granted message with request for acknowledgement using unicast messaging. | <-- | Floor Granted | - | - |
| 22 | Check: Does the UE (MCPTT client) respond with a Floor Ack message? | --> | Floor Ack | 3 | P |
| 22a1 | The SS sends a SIP MESSAGE containing a MuSiK download message to set the explicit MuSiK key to be used for the floor control encryption over the MBMS subchannel. | <-- | SIP MESSAGE | - | - |
| 22a2 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 5 | P |
| 23 | The SS sends a Floor Taken (by client A) message over the MBMS subchannel | <-- | Floor Taken | - | - |
| 24 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 25 | Check: Does the UE (MCPTT client) send a Floor Release message? | --> | Floor Release | 3 | P |
| - | EXCEPTION: Step 26a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE requests an acknowledgement to the Floor Release message. | - | - | - | - |
| 26a1 | The SS responds with a Floor Ack message using unicast messaging | <-- | Floor Ack | - | - |
| 27 | The SS sends a Floor Idle message with request for acknowledgement over the MBMS subchannel | <-- | Floor Idle | - | - |
| 28 | Check: Does the UE (MCPTT client) respond with a Floor Ack message sent over the MBMS subchannel? | --> | Floor Ack | 3 | P |
| 29 | The SS sends a Floor Taken message over the MBMS subchannel | <-- | Floor Taken | - | - |
| - | EXCEPTION: Step 30a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE (MCPTT client) notifies the user of the status of the floor; i.e. if the UE (MCPTT client) notifies the user when the floor is idle or who currently has the floor. | - | - | - | - |
| 30a1 | Check: Does the UE (MCPTT client) notify the user that the floor is taken? (NOTE 1) | - | - | 3 | P |
| 31 | The SS sends a Floor Idle message with request for acknowledgement over the MBMS subchannel | <-- | Floor Idle | - | - |
| 32 | Check: Does the UE (MCPTT client) respond with a Floor Ack message sent over the MBMS subchannel? | --> | Floor Ack | 3 | P |
| 33 | The SS ends the conversation on the MBMS subchannel and sends an Unmap Group to Bearer message on the MBMS subchannel. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | Unmap Group to Bearer | - | - |
| 34 | Check: Does the UE (MCPTT client) respond to the Unmap Group To Bearer message with a SIP MESSAGE containing an MBMS bearer listening status report? | --> | SIP MESSAGE | 2 | P |
| 35 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 36 | The SS cancels the MBMS bearer announcement and sends a SIP MESSAGE. | <-- | SIP MESSAGE | - | - |
| 37 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 1 | P |

| | | | | | |
|--|--|-----|--------------|---|---|
| 38 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 1 | P |
| 38a | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 39 | The SS sends a Floor Idle message with request for acknowledgement over the unicast channel | <-- | Floor Idle | - | - |
| 40 | Check: Does the UE respond with a Floor Ack message? | --> | Floor Ack | 4 | P |
| 41 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 42 | The UE (MCPTT client) performs procedure 'MCX CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.4.1.3.3 Specific message contents

Table 6.4.1.3.3-1: SIP INVITE (step 2, Table 6.4.1.3.2-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition GROUP-CALL |
|---|

Table 6.4.1.3.3-2: SIP MESSAGE (step 12, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| Message-body | | | | |
| MIME body part | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME-part-headers | | SDP message | | |
| Content-Type | "application/sdp" | | | |
| Content-Disposition | "render" | | | |
| MIME-part-body | SDP message as described in Table 6.4.1.3.3-3 | | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-4 | | | |

Table 6.4.1.3.3-3: SDP in SIP MESSAGE (Table 6.4.1.3.3-2)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1 | | | | |
|---|--|---|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media descriptions | | | | |
| media description | | m= line media = audio | | |
| media | "audio" | | | |
| port | "9" | | | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" or "IP6" depending on IP address | | | |
| connection-address | "0.0.0.0" (IPv4) or domain name within ".invalid" DNS top level domain (IPv6) | | | |
| media description | | m= line media = application | | |
| media | "application" | | | |
| port | "9" | | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" or "IP6" depending on IP address | | | |
| connection-address | "0.0.0.0" (IPv4) or domain name within ".invalid" DNS top level domain (IPv6) | | | |
| media description | | m= line media = application | | |
| media | "application" | | | |
| port | port number assigned by the SS | | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" | | | |
| connection-address | multicast IP assigned by the SS | | | |
| media attribute | | a= line attribute = key-mgmt | | |
| key-mgmt | | | TS 24.379 [9] clause 14.2.2.2 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in TS 36.579- 1 [2], Table 5.5.9.1-x. | MSCCK distribution as specified in TS 33.180 [33] Annex H | RFC 4567 [44] | |

Table 6.4.1.3.3-4: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-2)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | | | | |
| TMGI | | | | |
| MBMS Service ID | "0F0F0F" | The selected value is randomly chosen - a 6 digit hexadecimal number between 000000 and FFFFFFFF (see TS 23.003 [X] clause 15.2. The coding of the MBMS Service ID is the responsibility of each administration | | |
| MCC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Country Code | | |
| MNC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Network Code | | |
| QCI | "65" | Mission Critical user plane Push To Talk voice | | |
| mbms-service-areas | "0" | The selected value is randomly chosen. The value 0 has a special meaning; it shall denote the whole PLMN as the MBMS Service Area | | |
| GPMS | "2" | The number of the "m=application" media line in the application/sdp MIME | | |
| version | "1" | | | |

Table 6.4.1.3.3-5: SIP MESSAGE (step 14, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-6 | | | |

Table 6.4.1.3.3-6: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-5)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "listening" | | | |
| session-id | not present | | | |
| general-purpose | "true" | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.1.3.3-7: SIP MESSAGE (step 19, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-8 | | | |

Table 6.4.1.3.3-8: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-7)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "listening" | | | |
| session-id | px_session_A_ID | | | |
| general-purpose | not present | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.1.3.3-9: SIP MESSAGE (step 34, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | | | | |
| | | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-10 | | | |

Table 6.4.1.3.3-10: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-10)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "not-listening" | | | |
| session-id | px_session_A_ID | | | |
| general-purpose | not present | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.1.3.3-11: SIP MESSAGE (step 36, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| user-info and host | px_MBMS_Service_ID | The MBMS public service identity of the participating MCPTT function | | |
| port | not present | | | |
| Message-body | | | | |
| | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-12 | | | |

Table 6.4.1.3.3-12: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-11)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | | | | |
| TMGI | | | | |
| MBMS Service ID | "0F0F0F" | The selected value is randomly chosen - a 6 digit hexadecimal number between 000000 and FFFFFFFF (see TS 23.003 [X] clause 15.2. The coding of the MBMS Service ID is the responsibility of each administration | | |
| MCC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Country Code | | |
| MNC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Network Code | | |
| QCI | "65" | Mission Critical user plane Push To Talk voice | | |
| mbms-service-areas | not present | | | |
| GPMS | not present | | | |
| version | "1" | | | |

Table 6.4.1.3.3-13: SIP MESSAGE (step 38, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-14 | | | |

Table 6.4.1.3.3-13a: SIP MESSAGE (step 22a1, Table 6.4.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| Message-body | | | | |
| MIME body part | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME-part-headers | | MCPTT MBMS usage info | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.1.3.3-13B | | | |
| MIME body part | | MIKEY message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | | |
| MIME-part-body | As described in TS 36.579-1 [2], Table 5.5.9.1-x. | MIKEY message containing the MuSiK | | |

Table 6.4.1.3.3-13B: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-13a)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | not present | | | |
| version | "1" | | | |
| anyExt | | | | |
| mbms-explicitMuSiK-download | | | | |
| group | px_MCPTT_Group_A_ID | | | |

Table 6.4.1.3.3-14: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.1.3.3-13)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "not-listening" | | | |
| session-id | not present | | | |
| general-purpose | "false" | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.1.3.3-19: Floor Idle (steps 27, 31, 39, Table 6.4.1.3.2-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.6-1, condition ACK |
|--|

Table 6.4.1.3.3-21: Floor Granted (step 21, Table 6.4.1.3.2-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1, condition EMERGENCY-CALL. ACK |
|--|

Table 6.4.1.3.3-21..24: Void

6.4.2 On-network / MBMS / Multi Talker

6.4.2.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT On-demand Pre-arranged Group Call
and implicit floor control }
    then { UE (MCPTT Client) requests On-demand Automatic Commencement Mode Pre-arranged Group Call
establishment with implicit floor control by sending a SIP INVITE message, and, after indication
from the MCPTT Server that the call was established and receiving a Floor Granted message, notifies
the MCPTT User and respects basic floor control (Floor Release, Floor Idle, Floor Ack, Floor
Request)}}
}

```

(2)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives MBMS bearer announcements via SIP MESSAGE messages }
    then { UE (MCPTT Client) responds by sending a SIP 200 (OK) to the SIP MESSAGE message and the
UE (MCPTT Client) sends an MBMS listening status message via SIP MESSAGE }
}

```

(3)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives MBMS subchannel control messages }
    then { UE (MCPTT Client) responds by sending an MBMS listening status message via SIP MESSAGE }
}

```

(4)

```

with { UE (MCPTT Client) having established an MCPTT On-demand Pre-arranged Group Call with
Automatic Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives an explicit MuSiK download message }
  then { UE (MCPTT Client) sends a 200 OK response to accept the key and associates the key with
the group}
}

```

(5)

```

with { UE (MCPTT Client) listening to the MBMS subchannel during an ongoing MCPTT On-demand Pre-
arranged Group Call }
ensure that {
  when { the (MCPTT Client) receives multi-talker floor control messages from the SS (MCPTT Server)
over the MBMS subchannel }
  then { UE (MCPTT Client) notifies the MCPTT User }
}

```

(6)

```

with { UE (MCPTT Client) listening to the MBMS subchannel during an ongoing MCPTT On-demand Pre-
arranged Group Call }
ensure that {
  when { the MCPTT User engages in communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the MCPTT Server on the MBMS
subchannel (Floor Taken and Floor Idle) and continues to respect floor control imposed by the MCPTT
Server via unicast (Floor Ack and Floor Release)}
}

```

(7)

```

with { UE (MCPTT Client) having an ongoing On-demand Pre-arranged Group Call with Automatic
Commencement Mode }
ensure that {
  when { the MCPTT User requests terminate the ongoing MCPTT Group Call }
  then { UE (MCPTT Client) sends a SIP BYE request and leaves the MCPTT session }
}

```

6.4.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379, clauses 10.1.1.2.1.1, 6.2.4.1, 14.3.3.2, TS 24.380, clauses 10.3.2, 10.3.3, 10.3.4, 6.2.4.2.2, 6.2.4.4.2, 6.2.4.5.3, 6.2.4.6.4, 6.2.4.3.5, 6.2.4.5.8, 6.2.4.5.9, 6.2.4.3.2. Unless otherwise stated, these are Rel-15 requirements.

[TS 24.379, clause 10.1.1.2.1.1]

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

- 1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in clause 6.2.8.1.1;
- 2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in clause 6.2.8.1.9;
- 3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in clause 6.2.8.2;
- 4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

- 5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;
- 7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
- 8) should include the "timer" option tag in the Supported header field;
- 9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";
- 10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

NOTE 1: The MCPTT client is configured with public service identity identifying the participating MCPTT function serving the MCPTT user.

- 11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];
- 12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirming", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.2;
- 13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirming" shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.12;
- 14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:
 - a) the <session-type> element set to a value of "prearranged";
 - b) the <mcptt-request-uri> element set to the group identity;
 - c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

NOTE 2: The MCPTT client does not include the MCPTT ID of the originating MCPTT user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCPTT function.

- d) if the group identity can be determined to be a TGI and if the MCPTT client can associate the TGI with a MCPTT group ID, the <associated-group-id> element set to the MCPTT group ID; and
- e) if the MCPTT client is aware of active functional-aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The text "can associate the TGI with a MCPTT group ID" means that the MCPTT client is able to determine that there is a constituent group of the temporary group that it is a member of.

NOTE 4: The MCPTT client is informed about temporary groups and regrouping of MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31].

NOTE 5: If the MCPTT user selected a TGI where there are several MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 6: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

- 15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in clause 6.2.1;
- 16) if an implicit floor request is required, shall indicate this as specified in clause 6.4; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

On receiving a SIP 2xx response to the SIP INVITE request, the MCPTT client:

- 1) shall interact with the user plane as specified in 3GPP TS 24.380 [5] ;
- 2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in clause 6.2.8.1.4;
- 2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and
- 3) may subscribe to the conference event package as specified in clause 10.1.3.1.

[TS 24.379, clause 6.2.4.1]

Upon receiving a request from an MCPTT user to leave an MCPTT session established using on-demand session signalling, the MCPTT client:

- 1) shall interact with the media plane as specified in 3GPP TS 24.380 [5];
- 2) shall generate a SIP BYE request according to 3GPP TS 24.229 [4];
- 3) shall set the Request-URI to the MCPTT session identity to leave; and
- 4) shall send a SIP BYE request towards MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCPTT client shall interact with the media plane as specified in 3GPP TS 24.380 [5].

[TS 24.379, clause 14.3.3.2]

When the MCPTT client wants to report the MBMS bearer listening status, the MCPTT client:

NOTE 1: The application/vnd.3gpp.mcptt-mbms-usage-info+xml can contain both the listening status "listening" and "not listening" at the same time.

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33]; and
- 2) the SIP MESSAGE request:
 - a) shall include in the Request-URI the MBMS public service identity of the participating MCPTT function received in the P-Asserted-Identity header field of the announcement message;
 - b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media-feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];
 - c) should include a public user identity in the P-Preferred-Identity header field as specified in 3GPP TS 24.229 [4];
 - d) shall include a P-Preferred-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";
 - e) shall include an application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body with the <version> element set to "1";
 - f) if the MCPTT client is listening to the MBMS bearer, the application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body:
 - i) shall include an <mbms-listening-status> element set to "listening";
 - ii) if the intention is to report that the MCPTT client is listening to the MBMS subchannel for an ongoing conversation in a session (e.g. as the response to the Map Group To Bearer message), shall include the MCPTT session identity of the ongoing conversation in <session-identity> element;

- iii) shall include one or more <TGMI> elements for which the listening status applies; and
- iv) if the intention is to report that the MCPTT client is listening to the general purpose MBMS subchannel, shall include the <general-purpose> element set to "true";
- g) if the MCPTT client is not listening, the application/vnd.3gpp.mcptt-mbms-usage-info+xml MIME body:
 - i) shall include an <mbms-listening-status> element set to "not-listening";
 - iii) shall include one or more <TGMI> elements for which the listening status applies;
 - iii) if the intention is to report that the MCPTT client is no longer listening to the MBMS subchannel in an ongoing session (e.g. as the response to Unmap Group to Bearer message), shall include the MCPTT session identity in <session-identity> elements; and
 - iv) if the intention is to report that the MCPTT client is no longer listening to general purpose MBMS subchannel, shall include the <general-purpose> element set to "false"; and

NOTE 2: If the MCPTT client reports that the MCPTT client is no longer listening to the general purpose MBMS subchannel, it is implicitly understood that the MCPTT client no longer listens to any MBMS subchannel in ongoing conversations that the MCPTT client previously reported status "listening".

- h) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-request-uri> set to the MCPTT ID; and

3) shall send the SIP MESSAGE request according to 3GPP TS 24.229 [4].

[TS 24.380, clause 10.3.2]

When receiving a Map Group To Bearer message over the general purpose MBMS subchannel, the MBMS interface in the MCPTT client:

1. shall associate the TMGI in the TMGI field, the MBMS subchannel for audio and for floor control with the MCPTT group identity in the MCPTT Group ID field.

[TS 24.380, clause 10.3.3]

If the MBMS interface receives RTP media packets or floor control messages over the MBMS subchannel, the MBMS interface in the MCPTT client:

1. if there is an association between the TMGI, the MBMS subchannel for audio and for floor control to an ongoing conversation in a group session:
 - a. shall forward the received floor control messages to the floor participant in the conversation; and
 - b. if the received RTP medias contains a different SSRC value than the SSRC value used by the MCPTT client, shall forward the received RTP packets to the media mixer in the conversation; and
2. if there is no such association:
 - a. shall ignore the received floor control message or received RTP media packet.

[TS 24.380, clause 10.3.4]

When receiving the Unmap Group To Bearer message over a MBMS subchannel, the MBMS interface in the MCPTT client:

1. shall remove the association between the TMGI, the MBMS subchannel for audio and for floor control from the conversation in the group session identified by the MCPTT Group ID field, if such an association exists.

[TS 24.380, clause 6.2.4.2.2]

When a call is initiated as described in 3GPP TS 24.379 [2], the floor participant:

1. shall create an instance of the 'Floor participant state transition diagram for basic operation';

2. if the originating floor participant receives a floor control message before it receives the SIP 200 (OK) response, shall store the floor control message;

NOTE: The originating floor participant might receive a floor control message before the SIP 200 (OK) response when initiating, joining or rejoining a call because of processing delays of the SIP 200 (OK) response in the SIP core.

3. if the established MCPTT call is a chat group call and the SIP INVITE request is not an implicit floor request, shall enter the 'U: has no permission' state; and
4. if for the established MCPTT call the SIP INVITE request is an implicit floor request:
 - a. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1;
 - b. shall enter the 'U: pending Request' state; and
 - c. if the floor participant has received and stored a floor control message before the reception of the SIP 200 (OK) response, shall act as if the floor control message was received in the 'U: pending Request' state after entering the 'U: pending Request' state.

When the floor participant is rejoining an ongoing MCPTT call as described in 3GPP TS 24.379 [2] the floor participant shall enter the 'U: has no permission' state.

[TS 24.380, clause 6.2.4.4.2]

Upon receiving a Floor Granted message from the floor control server or a floor granted indication in a SIP 200 (OK) response in the application and signalling layer, the floor participant:

1. if the first bit in the subtype of the Floor Granted message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '1' (Floor Granted); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. if the call is not an ambient listening call, shall provide floor granted notification to the user, if not already done;

NOTE: Providing the floor granted notification to the user prior to receiving the Floor Granted message is an implementation option.

3. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. if the G-bit in the Floor Indicator is set to '1' (Dual floor) shall store an indication that the participant is overriding without revoke;
5. shall stop the optional timer T103 (End of RTP media), if running;
6. shall stop timer T101 (Floor Request); and
7. shall enter the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.3]

Upon receiving an indication from the user to release the permission to send RTP media, the floor participant:

1. shall send a Floor Release message towards the floor control server. The Floor Release message:
 - a. may include the first bit in the subtype of the Floor Release message set to '1' (acknowledgement is required) as specified in subclause 8.2.2;

NOTE: It is an implementation option to handle the receipt of the Floor Ack message and what action to take if the Floor Ack message is not received.

- b. if the session is a broadcast call and if the session was established as a normal call, shall include the Floor Indicator with the A-bit set to '1' (Normal call); and

- c. if the Floor Granted message included the G-bit set to '1' (Dual floor), shall include the Floor Indicator with the G-bit set to '1' (Dual floor);
2. shall remove the indication that the participant is overriding without revoke if this indication is stored;
3. shall remove the indication that the participant is overridden without revoke if this indication is stored;
4. shall start timer T100 (Floor Release) and initialize counter C100 (Floor Release) to 1; and
5. shall enter the 'U: pending Release' state.

[TS 24.380, clause 6.2.4.6.4]

Upon receiving a Floor Idle message, the floor participant:

1. if the first bit in the subtype of the Floor Idle message to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '5' (Floor Idle); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide a floor idle notification to the MCPTT user;
3. if the Floor Indicator field is included and the B-bit set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call;
4. shall stop timer T100 (Floor Release);
5. if the session is not a broadcast group call or if the A-bit in the Floor Indicator field is set to '1' (Normal call), shall enter the 'U: has no permission' state; and
6. if the session was initiated as a broadcast group call:
 - a. shall indicate to the MCPTT client the media transmission is completed; and
 - b. shall enter the 'Releasing' state.

[TS 24.380, clause 6.2.4.3.5]

Upon receiving an indication from the user to request permission to send media, the floor participant:

1. shall send the Floor Request message toward the floor control server; The Floor Request message:
 - a. if a different priority than the normal priority is required, shall include the Floor Priority field with the priority not higher than negotiated with the floor control server as specified in subclause 14.3.3;
 - b. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types; and
 - c. shall include the Location field:
 - i. if the current location of the talker is not available or is not to be reported according to the MCPTT user profile, then the location type is set to '0' (Not provided); or
 - ii. if the current location of the talker is available and may be reported according to the MCPTT user profile, then the location type and location value are set as specified in table 8.2.3.21-3;
2. shall start timer T101 (Floor Request) and initialise counter C101 (Floor Request) to 1; and
3. shall enter the 'U: pending Request' state.

[TS 24.380, clause 6.2.4.5.8]

Upon receiving a Floor Taken message:

1. if the G-bit in the Floor Indicator set to '1' (Dual Floor) the floor participant:

- a. shall inform the user that the call is overridden without revoke;
 - b. shall store an indication that the participant is overridden without revoke; and
 - c. shall remain in the 'U: has permission' state; and
2. if the I-bit in the Floor Indicator set to '1' (Multi-talker) the floor participant:
 - a. may provide a floor taken notification to the user;
 - b. should start the optional timer T103 (End of RTP media) for the participant for which Floor Taken message was received;
 - c. shall provide a notification to the user indicating the type of call and may provide a list of current talkers; and
 - d. shall remain in the 'U: has permission' state.

[TS 24.380, clause 6.2.4.5.9]

Upon receiving the Floor Release Multi Talker message, the floor participant:

1. shall provide a notification to the user indicating that the participant has released the floor in a multi-talker group; and
2. shall remain in the 'U: has permission' state.

[TS 24.380, clause 6.2.4.3.2]

Upon receiving a Floor Idle message, the participant:

1. if the first bit in the subtype of the Floor Idle message is set to '1' (Acknowledgment is required) as described in subclause 8.3.2, shall send a Floor Ack message. The Floor Ack message:
 - a. shall include the Message Type field set to '5' (Floor Idle); and
 - b. shall include the Source field set to '0' (the floor participant is the source);
2. may provide floor idle notification to the user, if it has not already done so;
3. shall stop the optional timer T103 (End of RTP media), if it is running; and
4. shall remain in the 'U: has no permission' state.

6.4.2.3 Test description

6.4.2.3.1 Pre-test conditions

System Simulator:

- SS (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

IUT:

- UE (MCPTT Client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

Preamble:

- A pre-activated MBMS bearer exists

- The <multi-talker-control> element of the MCPTT Group Configuration Defaults as specified in TS 36.579-1 [2], Table 5.5.7.1-1 is set to "true".
- The <max-number-simultaneous-talkers> element of the MCPTT Group Configuration Defaults as specified in TS 36.579-1 [2], Table 5.5.7.1-1 is set to "2".
- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- UE States at the end of the preamble
 - The UE is in E-UTRA Registered, Idle Mode state.
 - The MCPTT Client Application has been activated and User has registered-in as the MCPTT User with the Server as active user at the Client.

6.4.2.3.2

Test procedure sequence

Table 6.4.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|---------------------|----|---------|
| | | U - S | Message | | |
| 1 | Make the UE (MCPTT client) request the establishment of a group call with automatic commencement mode and implicit floor request. (NOTE 1) | - | - | - | - |
| 2 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO session establishment/modification without provisional responses other than 100 Trying' as described in TS 36.579-1 [2] Table 5.3A.1.3-1 to establish a group call with automatic commencement mode and implicit floor control according to option b.ii of NOTE 1 in TS 36.579.1 [2] Table 5.3A.1.3-1? | - | - | 1 | - |
| 3 | Check: Does the UE (MCPTT client) provide floor granted notification to the user? (NOTE 1) | - | - | 1 | - |
| 4 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 5 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT Floor Release – Floor Idle' as described in TS 36.579-1 [2] Table 5.3A.15.3-1? | - | - | 1 | P |
| 6 | The SS pre-activates an MBMS bearer and sends a SIP MESSAGE containing an MBMS bearer announcement message to announce the availability of an MBMS bearer. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | SIP MESSAGE | - | - |
| 7 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 2 | P |
| 8 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 2 | P |
| 9 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 10 | Make the UE (MCPTT client) request the floor. (NOTE 1) | - | - | - | - |
| 11 | Check: Does the UE (MCPTT client) send a Floor Request message? | --> | Floor Request | 1 | P |
| 12 | The SS decides that a MBMS subchannel shall be used for the conversation and sends a Map Group To Bearer message over the general purpose MBMS subchannel. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | Map Group To Bearer | - | - |
| 13 | Check: Does the UE (MCPTT client) respond to the Map Group To Bearer message by sending a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 3 | P |
| 14 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 15 | The SS sends a Floor Granted message with request for acknowledgement using unicast messaging. | <-- | Floor Granted | - | - |
| 16 | Check: Does the UE (MCPTT client) respond with a Floor Ack message? | --> | Floor Ack | 1 | P |

| | | | | | |
|------|---|-----|----------------------------|---|---|
| 17 | The SS sends a SIP MESSAGE containing a MuSiK download message to set the explicit MuSiK key to be used for the floor control encryption over the MBMS subchannel. | <-- | SIP MESSAGE | - | - |
| 18 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 4 | P |
| 19 | The SS sends a Floor Taken (by client A) message over the MBMS subchannel. | <-- | Floor Taken | - | - |
| 20 | The SS (MCPTT server) sends a Floor Taken message with I-bit in the Floor Indicator set to '1' (Multi-talker) over the MBMS subchannel. | <-- | Floor Taken | - | - |
| 21 | Check: Does the UE (MCPTT client) provide a notification to the user indicating the type of call? (NOTE 1) | - | - | 5 | P |
| 22 | The SS (MCPTT server) sends a Floor Release Multi Talker message over the MBMS subchannel. | <-- | Floor Release Multi Talker | - | - |
| 23 | Check: Does the UE (MCPTT client) provide a notification to the user indicating that the participant has released the floor in a multi-talker group? (NOTE 1) | - | - | 5 | P |
| 24 | Make the UE (MCPTT client) release the floor. (NOTE 1) | - | - | - | - |
| 25 | Check: Does the UE (MCPTT client) send a Floor Release message? | --> | Floor Release | 6 | P |
| - | EXCEPTION: Step 26a1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE requests an acknowledgement to the Floor Release message. | - | - | - | - |
| 26a1 | The SS responds with a Floor Ack message using unicast messaging | <-- | Floor Ack | - | - |
| 27 | The SS sends a Floor Idle message with request for acknowledgement over the MBMS subchannel. | <-- | Floor Idle | - | - |
| 28 | Check: Does the UE (MCPTT client) respond with a Floor Ack message over the MBMS subchannel? | --> | Floor Ack | 6 | P |
| 29 | The SS ends the conversation on the MBMS subchannel and sends an Unmap Group to Bearer message on the MBMS subchannel. NOTE: The related E-UTRA/EPC actions are described in TS 36.579-1 [2], clause 5.4.12 'MCX communication over MBMS'. The test sequence below shows only the MCPTT relevant messages exchanged. | <-- | Unmap Group to Bearer | - | - |
| 30 | Check: Does the UE (MCPTT client) respond to the Unmap Group To Bearer message with a SIP MESSAGE containing an MBMS bearer listening status report? | --> | SIP MESSAGE | 3 | P |
| 31 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 32 | The SS cancels the MBMS bearer announcement and sends a SIP MESSAGE message. | <-- | SIP MESSAGE | - | - |
| 33 | Check: Does the UE (MCPTT client) respond with a SIP 200 (OK)? | --> | SIP 200 (OK) | 2 | P |
| 34 | Check: Does the UE (MCPTT client) send a SIP MESSAGE containing an MBMS Bearer listening status report? | --> | SIP MESSAGE | 2 | P |
| 35 | The SS responds with a SIP 200 (OK). | <-- | SIP 200 (OK) | - | - |
| 36 | The SS sends a Floor Idle message with request for acknowledgement over the unicast channel | <-- | Floor Idle | - | - |

| | | | | | |
|--|---|-----|-----------|---|---|
| 37 | Check: Does the UE respond with a Floor Ack message? | --> | Floor Ack | 1 | P |
| 38 | Make the UE (MCPTT client) release the call. (NOTE 1) | - | - | - | - |
| 39 | Check: Does the UE (MCPTT client) correctly perform procedure 'MCPTT CO call release' as described in TS 36.579-1 [2] Table 5.3.10.3-1? | - | - | 7 | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

6.4.2.3.3 Specific message contents

Table 6.4.2.3.3-1: SIP INVITE (step 2, Table 6.4.2.3.2-1; step 2, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.3A.1.4-1 | | | | |
|--|---|--------------------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| MIME body part | | SDP message | | |
| MIME-part-body | SDP Message as described in Table 6.4.2.3.3-2 | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-body | MCPTT-Info as described in Table 6.4.2.3.3-3 | | | |

Table 6.4.2.3.3-2: SDP in SIP INVITE (Table 6.4.2.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-1, condition FIRST_SDP_FROM_UE, INITIAL_SDP_OFFER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.4.2.3.3-3: MCPTT-Info in SIP INVITE (Table 6.4.2.3.3-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL, INVITE_REFER |
|---|

Table 6.4.2.3.3-4: SIP 200 (OK) (step 2, Table 6.4.2.3.2-1; step 4, TS 36.579-1 [2] Table 5.3A.1.3-1)

| Derivation Path: TS 36.579-1 [2], Table 5.3A.1.4-2, condition INVITE_RSP | | | | |
|--|-----------------------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Message-body | | | | |
| SDP Message | As described in Table 6.4.2.3.3-5 | | | |

Table 6.4.2.3.3-5: SDP in SIP 200 (OK) (Table 6.4.2.3.3-4)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1, condition SDP_ANSWER, IMPLICIT_GRANT_REQUESTED |
|---|

Table 6.4.2.3.3-7: SIP MESSAGE (step 6, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| Message-body | | | | |
| | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | SDP message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | | |
| Content-Disposition | "render" | | | |
| MIME-part-body | SDP message as described in Table 6.4.2.3.3-8 | | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-9 | | | |

Table 6.4.2.3.3-8: SDP in SIP MESSAGE (Table 6.4.2.3.3-7)

| Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-1 | | | | |
|---|--|---|-------------------------------------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Media descriptions | | | | |
| media description | | m= line media = audio | | |
| media | "audio" | | | |
| port | "9" | | | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" or "IP6" depending on IP address | | | |
| connection-address | "0.0.0.0" (IPv4) or domain name within ".invalid" DNS top level domain (IPv6) | | | |
| media description | | m= line media = application | | |
| media | "application" | | | |
| port | "9" | | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" or "IP6" depending on IP address | | | |
| connection-address | "0.0.0.0" (IPv4) or domain name within ".invalid" DNS top level domain (IPv6) | | | |
| media description | | m= line media = application | | |
| media | "application" | | | |
| port | port number assigned by the SS | | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| Connection Data | | | | |
| nettype | "IN" | c= line | | |
| addrtype | "IP4" | | | |
| connection-address | multicast IP assigned by the SS | | | |
| media attribute | | a= line attribute = key-mgmt | | |
| key-mgmt | | | TS 24.379 [9] clause 14.2.2.2 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in TS 36.579- 1 [2], Table 5.5.9.1-4. | MSCCK distribution as specified in TS 33.180 [33] Annex H | RFC 4567 [44] | |

Table 6.4.2.3.3-9: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-7)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|--|--|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | | | | |
| TMGI | | | | |
| MBMS Service ID | "0F0F0F" | The selected value is randomly chosen - a 6 digit hexadecimal number between 000000 and FFFFFFFF (see TS 23.003 [32] clause 15.2. The coding of the MBMS Service ID is the responsibility of each administration | | |
| MCC | The same value as for PLMN1 specified in Table 5.5.8.1-1 | Mobile Country Code | | |
| MNC | The same value as for PLMN1 specified in Table 5.5.8.1-1 | Mobile Network Code | | |
| QCI | "65" | Mission Critical user plane Push To Talk voice | | |
| mbms-service-areas | "0" | The selected value is randomly chosen. The value 0 has a special meaning; it shall denote the whole PLMN as the MBMS Service Area | | |
| GPMS | "2" | The number of the "m=application" media line in the application/sdp MIME | | |
| version | "1" | | | |

Table 6.4.2.3.3-10: SIP MESSAGE (step 8, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-11 | | | |

Table 6.4.2.3.3-11: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-10)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "listening" | | | |
| session-id | not present | | | |
| general-purpose | "true" | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.2.3.3-13: SIP MESSAGE (step 13, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-14 | | | |

Table 6.4.2.3.3-14: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-13)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "listening" | | | |
| session-id | px_session_A_ID | | | |
| general-purpose | not present | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.2.3.3-16: Floor Ack (steps 16, 28, 37, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.11-1, condition UPLINK | | | | |
|--|--|--|--|--|
|--|--|--|--|--|

Table 6.4.2.3.3-17: SIP MESSAGE (step 17, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1 | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| Message-body | | | | |
| MIME body part | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME-part-headers | | MCPTT MBMS usage info | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-18 | | | |
| MIME body part | | MIKEY message | | |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | | |
| MIME-part-body | As described in TS 36.579-1 [2], Table 5.5.9.1-5. | MIKEY message containing the MuSiK | | |

Table 6.4.2.3.3-18: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-17)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---------------------|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | not present | | | |
| version | "1" | | | |
| anyExt | | | | |
| mbms-explicitMuSiK-download | | | | |
| group | px_MCPTT_Group_A_ID | | | |

Table 6.4.2.3.3-20: Floor Taken (step 20, Table 6.4.2.3.2-1)

| |
|---|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1, condition Multi-Talker |
|---|

Table 6.4.2.3.3-22: Floor Ack (step 26a1, Table 6.4.2.3.2-1)

| |
|--|
| Derivation Path: TS 36.579-1 [2], Table 5.5.6.11-1, condition DOWNLINK |
|--|

Table 6.4.2.3.3-23: SIP MESSAGE (step 30, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | | | | |
| | | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-24 | | | |

Table 6.4.2.3.3-24: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-23)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "not-listening" | | | |
| session-id | px_session_A_ID | | | |
| general-purpose | not present | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

Table 6.4.2.3.3-25: SIP MESSAGE (step 32, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Accept-Contact | | | | |
| ac-value | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| P-Asserted-Identity | | | | |
| addr-spec | | | | |
| user-info and host | px_MBMS_Service_ID | The MBMS public service identity of the participating MCPTT function | | |
| port | not present | | | |
| Message-body | | | | |
| | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-26 | | | |

Table 6.4.2.3.3-26: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-25)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|--|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | not present | | | |
| announcement | | | | |
| TMGI | | | | |
| MBMS Service ID | "0F0F0F" | The selected value is randomly chosen - a 6 digit hexadecimal number between 000000 and FFFFFFFF (see TS 23.003 [X] clause 15.2. The coding of the MBMS Service ID is the responsibility of each administration | | |
| MCC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Country Code | | |
| MNC | The same value as for PLMN1 specified in Table 5.5.8.1-x | Mobile Network Code | | |
| QCI | "65" | Mission Critical user plane Push To Talk voice | | |
| mbms-service-areas | not present | | | |
| GPMS | not present | | | |
| version | "1" | | | |

Table 6.4.2.3.3-27: SIP MESSAGE (step 34, Table 6.4.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1 | | | | |
|---|---|---|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| Request-Line | | | | |
| Request-URI | The value received in the P-Asserted-Identity header field of the announcement message (px_MBMS_Service_ID) | | | |
| Accept-Contact | | | | |
| ac-value | "g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| P-Preferred-Identity | | | | |
| PPreferredID-value | px_MCPTT_User_A_ID | | | |
| P-Asserted-Service | | | | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| Message-body | MIME body not including MCPTT-Affiliation-Command | not including any MIME body part with Content-Type "application/vnd.3gpp.mcptt-affiliation-command+xml" | | |
| MIME body part | | MCPTT MBMS usage info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-mbms-usage-info+xml" | | | |
| MIME-part-body | MCPTT-MBMS-Usage-Info as described in Table 6.4.2.3.3-28 | | | |

Table 6.4.2.3.3-28: MCPTT-MBMS-Usage-Info in SIP MESSAGE (Table 6.4.2.3.3-27)

| Derivation Path: TS 24.379 [9], Clause F.2 | | | | |
|--|---|---------|-----------|-----------|
| Information Element | Value/remark | Comment | Reference | Condition |
| mcptt-mbms-usage-info | | | | |
| mbms-listening-status | | | | |
| mbms-listening-status | "not-listening" | | | |
| session-id | not present | | | |
| general-purpose | "false" | | | |
| TMGI | same value as the announcement in the SIP MESSAGE | | | |
| announcement | not present | | | |
| version | "1" | | | |

7 MCPTT Client off-network operation

7.1 Off-network Group Calls

7.1.1 Off-network / Group Call / Floor Control / Upgrade to Emergency Call / Downgrade from Emergency / Upgrade to Imminent Peril / Downgrade from Imminent Peril / Release Call / Client Originated (CO)

7.1.1.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate/cancel group calls in off-network environment, and the UE (MCPTT Client) is in an off-
network environment }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT pre-arranged group call }
  then { UE (MCPTT Client) requests a pre-arranged group call by sending a GROUP CALL PROBE
message and, upon not receiving a response to the GROUP CALL PROBE, sends a GROUP CALL ANNOUNCEMENT
message }
}
```

(2)

```
with { UE (MCPTT Client) having established an off-network MCPTT Pre-arranged Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator (Floor Request during a talk burst, Floor granting/release, Floor idle, Floor
deny, Floor taken/revoked, Floor request queued and queue handling) }
}
```

(3)

```
with { UE (MCPTT Client) having established an off-network group call and the MCPTT User being
authorised for initiating an MCPTT emergency group call }
ensure that {
  when { the MCPTT User requests to upgrade the ongoing off-network MCPTT group call to an MCPTT
emergency group call }
  then { UE (MCPTT Client) sends a GROUP CALL ANNOUNCEMENT message and enters the T1: in-progress
emergency group call state}
}
```

(4)

```
with { UE (MCPTT Client) having upgraded to an off-network emergency group call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator }
}
```

(5)

```
with { UE (MCPTT Client) having upgraded to an off-network emergency group call and the MCPTT User
being authorised for cancelling an MCPTT emergency state }
ensure that {
  when { the MCPTT User requests to cancel the ongoing MCPTT Emergency state }
  then { UE (MCPTT Client) sends a GROUP CALL EMERGENCY END message and enters the T2: in-
progress basic group call state }
}
```

(6)

```

with { UE (MCPTT Client) having established an off-network group call and the MCPTT User being
authorised for initiating an MCPTT imminent peril group call }
ensure that {
  when { the MCPTT User requests to upgrade the ongoing off-network MCPTT group call to an MCPTT
imminent peril group call with floor control }
  then { UE (MCPTT Client) sends a GROUP CALL ANNOUNCEMENT message and enters the T3: in-progress
imminent peril group call state}
}

```

(7)

```

with { UE (MCPTT Client) having upgraded to an off-network imminent peril group call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator }
}

```

(8)

```

with { UE (MCPTT Client) having upgraded to an off-network imminent peril group call and the MCPTT
User being authorised for cancelling an MCPTT imminent peril state }
ensure that {
  when { the MCPTT User requests to cancel the ongoing MCPTT imminent peril state }
  then { UE (MCPTT Client) sends a GROUP CALL IMMINENT PERIL END message and enters the T2:
in-progress basic group call state }
}

```

7.1.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.2.1, 10.2.2.4.3.1, 10.2.3.4.2, 10.2.3.4.7.1, 10.2.3.4.8.1, 10.2.3.4.8.4, 10.2.2.4.5.1, 10.2.2.4.5.4, 10.2.3.4.10, TS 24.380 clauses 7.2.3.2.2, 7.2.3.5.5, 7.2.3.3.2, 7.2.3.6.7, 7.2.3.5.4, 7.2.3.5.8, 7.2.3.5.6, 7.2.3.7.3, 7.2.3.7.5, 7.2.3.3.4, 7.2.3.4.3, 7.2.3.3.6, 7.2.3.4.2, 7.2.3.6.4, 7.2.3.6.3, 7.2.3.8.11, 7.2.3.8.3, 7.2.3.8.6, 7.2.3.5.7, 7.2.3.6.9, 7.2.3.6.6. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.2.1]

When in the "S1: start-stop" state, upon an indication from an MCPTT user to initiate a group call for an MCPTT group ID, the MCPTT client:

...

- 3) shall generate a GROUP CALL PROBE message as specified in subclause 15.1.2. In the GROUP CALL PROBE message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
- 4) shall send the GROUP CALL PROBE message as specified in subclause 10.2.1.1.1;
- 5) shall start timer TFG3 (call probe retransmission);
- 6) shall start timer TFG1 (wait for call announcement); and

[TS 24.379, clause 10.2.2.4.3.1]

When in the "S2: waiting for call announcement" state, upon expiry of timer TFG1 (wait for call announcement), the MCPTT client:

- 1) shall stop timer TFG3 (call probe retransmission), if running;
- ...
- 7) shall generate a GROUP CALL ANNOUNCEMENT message as specified in subclause 15.1.3. In the GROUP CALL ANNOUNCEMENT message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;

- b) shall set the Call type IE to the stored current call type associated with the call type control state machine;
 - c) shall set the Refresh interval IE to the stored refresh interval of the call;
 - d) shall set the SDP IE to the stored SDP body of the call;
 - e) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call;
 - f) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
 - g) shall set the Call start time IE to the stored call start time of the call;
 - h) shall set the Last call type change time IE to the stored last call type change time of the call associated with call type control state machine;
 - i) shall set the Last user to change call type IE to last user to change call type associated with call type control state machine; and
 - j) may include the Confirm mode indication IE;
- 8) shall send the GROUP CALL ANNOUNCEMENT message as specified in subclause 10.2.1.1.1;
- 9) shall establish a media session based on the stored SDP body of the call;
- 10) shall start floor control as originating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];

[TS 24.379, clause 10.2.3.4.2]

When in the "T0: waiting for the call to establish " state, upon an indication from an MCPTT user to initiate a group call probe for an MCPTT group, the MCPTT client:

- 1) if the stored emergency state associated with emergency alert state machine described in 12.2.2.2 is set to "true" and the value of "`<x>/<x>/Common/AllowedEmergencyCall`" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] is set to "true":
 - a) shall set the stored current call type to "EMERGENCY GROUP CALL"; and
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
- 2) if the stored emergency state associated with emergency alert state machine described in 12.2.2.2 is set to "false", and:
 - a) if the user initiates an MCPTT emergency call and the values of "`<x>/<x>/Common/MCPTTGroupCall/EmergencyCall/Enabled`" leaf node present in the user profile and "`<x>/<x>/Common/AllowedEmergencyCall`" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] are set to "true":
 - i) shall set the stored current call type to "EMERGENCY GROUP CALL"; and
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - b) if the user initiates an MCPTT imminent peril group call and the values of "`<x>/<x>/Common/MCPTTGroupCall/ImminentPerilCall/Authorised`" leaf node present in the user profile and "`<x>/<x>/Common/AllowedImminentPerilCall`" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] are set to "true":
 - i) shall set the stored current call type to "IMMINENT PERIL GROUP CALL"; and
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45]; and
 - c) if the user initiates an MCPTT group call which is not an MCPTT emergency call and which is not an MCPTT imminent peril group call:
 - i) shall set the stored current call type to "BASIC GROUP CALL"; and

- ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45];

[TS 24.379, clause 10.2.3.4.7.1]

When in the "T2: in-progress basic group call" state, upon receiving an indication from the user to upgrade the call to "IMMINENT PERIL GROUP CALL" or "EMERGENCY GROUP CALL" or when in the "T3: in-progress imminent peril group call" state, upon receiving an indication from the user to upgrade the call to "EMERGENCY GROUP CALL", the MCPTT client:

- 1) if the user request is to upgrade the call to "EMERGENCY GROUP CALL" and the value of "`/<x>/<x>/OffNetwork/EmergencyCallChange`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true":
 - a) shall set the stored current call type to "EMERGENCY GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - c) shall store the current UTC time as last call type change time of the call;
 - d) shall store own MCPTT user ID as last user to change call type of the call;
 - e) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1;
 - f) shall stop timer TFG11 (emergency end retransmission), if running;
 - g) shall stop timer TFG14 (implicit downgrade imminent peril), if running; and
 - h) shall enter "T1: in-progress emergency group call" state;
- 2) if the user request is to upgrade the call to "IMMINENT PERIL GROUP CALL" and the value of "`/<x>/<x>/OffNetwork/ImminentPerilCallChange`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] set to "true":
 - a) shall set the stored current call type to "IMMINENT PERIL GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45];
 - c) shall store the current UTC time as last call type change time of the call;
 - d) shall store own MCPTT user ID as last user to change call type of the call;
 - e) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2;
 - f) shall stop timer TFG12 (imminent peril end retransmission), if running; and
 - g) shall enter "T3: in-progress imminent peril group call" state;
- 3) shall generate a GROUP CALL ANNOUNCEMENT message as specified in subclause 15.1.3. In the GROUP CALL ANNOUNCEMENT message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call associated with the basic call control state machine;
 - b) shall set the Call type IE to the stored current call type;
 - c) shall set the Refresh interval IE to the stored refresh interval of the call associated with the basic call control state machine;
 - d) shall set the SDP IE to the stored SDP body of the call associated with the basic call control state machine;
 - e) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call associated with the basic call control state machine;

- f) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call associated with the basic call control state machine;
 - g) shall set the call start time IE to the stored call start time of the call;
 - h) shall set the Last call type change time IE to the stored last call type change time of the call; and
 - i) shall set the Last user to change call type IE to the stored last user to change call type of the call; and
- 4) shall send the GROUP CALL ANNOUNCEMENT message as specified in subclause 10.2.1.1.1;

[TS 24.379, clause 10.2.3.4.8.1]

When in the "T1: in-progress emergency group call" state, upon receiving an indication from:

- 1) the MCPTT user who upgraded the MCPTT group call; or
- 2) an authorized MCPTT user with the value of "`/<x>/<x>/Common/MCPTTGroupCall/EmergencyCall/CancelMCPTTGroup`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true",

to downgrade "EMERGENCY GROUP CALL", the MCPTT client:

...

- 5) shall generate a GROUP CALL EMERGENCY END message as specified in subclause 15.1.15. In the GROUP CALL EMERGENCY END message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call associated with the basic call control state machine;
 - b) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call associated with the basic call control state machine;
 - c) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call associated with the basic call control state machine;
 - d) shall set the Last call type change time IE to the stored last call type change time of the call; and
 - e) shall set the Last user to change call type IE to the stored last user to change call type of the call;
- 6) shall send the GROUP CALL EMERGENCY END message as specified in subclause 10.2.1.1.1;

[TS 24.379, clause 10.2.3.4.8.4]

When in the "T3: in-progress imminent peril group call" state, upon receiving an indication from:

- 1) the MCPTT user who upgraded the call; or
- 2) an authorized with the value of "`/<x>/<x>/Common/MCPTTGroupCall/ImminentPerilCall/Cancel`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true",

to downgrade "IMMINENT PERIL GROUP CALL", the MCPTT client:

...

- 5) shall generate a GROUP CALL IMMINENT PERIL END message as specified in subclause 15.1.14. In the GROUP CALL IMMINENT PERIL END message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call associated with the basic call control state machine;
 - b) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call associated with the basic call control state machine;
 - c) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call associated with the basic call control state machine;

- d) shall set the Last call type change time IE to the stored last call type change time of the call; and
- e) shall set the Last user to change call type IE to the stored last user to change call type of the call;
- 6) shall send the GROUP CALL IMMINENT PERIL END message as specified in subclause 10.2.1.1.1;

[TS 24.379, clause 10.2.2.4.5.1]

When in the "S3: part of ongoing call" state, the "S5: pending user action with confirm indication" state, or the "S4: pending user action without confirm indication" state, upon an indication from the MCPTT user to release the group call, the MCPTT client:

- 1) shall release the media session, if established;

[TS 24.379, clause 10.2.2.4.5.4]

When in the "S6: ignoring incoming call announcements" state, upon expiration of timer TFG5 (not present incoming call announcements), the MCPTT client:

- 1) shall release the stored SDP body of the call;
- 2) shall release the stored call identifier of the call;
- 3) shall release the stored originating MCPTT user ID of the call;
- 4) shall release the stored refresh interval of the call;
- 5) shall release the stored MCPTT group ID of the call;
- 6) shall release the call start time of the call;
- 7) shall destroy the call type control state machine; and
- 8) shall enter the "S1: start-stop" state.

[TS 24.379, clause 10.2.3.4.10]

When in state T1: in-progress emergency group call" or "T2: in-progress basic group call" or "T3: in-progress imminent peril group call" or upon receiving an indication from MCPTT user to release the call, the MCPTT client:

- 1) shall release stored current call type;
- 2) shall release stored ProSe per-packet priority;
- 3) shall release Last call type change time;
- 4) shall release Last user to change call type; and
- 5) shall enter "T0: waiting for the call to establish" state.

[TS 24.380, clause 7.2.3.2.2]

When an MCPTT call is established with session announcement including an explicit floor request, the originating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall send Floor Granted message towards other floor participants. The Floor Granted message:
 - a. shall include the granted priority in the Floor priority field;
 - b. shall include the MCPTT user's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
3. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and

4. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.5]

Upon receiving an indication from the MCPTT user to release permission to send RTP media, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall send a Floor Release message towards other floor participants, if no queued requests exist: The Floor Release message:
 - a. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - b. if the session is not initiated as a broadcast group call with the B-bit set to '1' (Broadcast group call), shall include a Floor Indicator field set to '0' (normal call);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the current arbitrator; and
6. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.3.2]

If the floor participant receives an indication from the MCPTT user to send media, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the <User ID> value of the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall stop timer T230 (Inactivity);
4. shall start timer T201 (Floor Request); and
5. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.7]

Upon receiving Floor Granted message and if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC;
3. shall stop timer T203 (End of RTP media), if running;
4. shall stop timer T201 (Floor Request);
5. may provide a floor granted notification to the MCPTT user;
6. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall enter 'O: has permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall set the stored SSRC of the current arbitrator to its own SSRC;
2. shall stop timer T203 (End of RTP media);
3. shall stop timer T201 (Floor Request);
4. may provide a floor granted notification to the MCPTT user;
5. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
6. shall enter 'O: has permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall set the stored SSRC of the current arbitrator to its own SSRC;
2. shall stop timer T203 (End of RTP media);
3. shall stop timer T201 (Floor Request);
4. may provide a floor granted notification to the MCPTT user;
5. shall clear the stored SSRC of the candidate arbitrator;
6. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.4]

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, in a session where:

1. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "false"; or
2. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" but the F-bit in the Floor Indicator field is set to '0' (i.e. indicating that queuing of floor requests is not supported) or the Floor Indicator field is not included in the Floor Request message;

then the floor participant:

1. shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
2. shall remain in 'O: has permission' state.

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, and the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" and the F-bit in the Floor Indicator field is set to '1' (i.e. indicating that queuing of the floor requests is supported) in the Floor Request message, the floor participant:

1. shall store the received Floor Request messages;

2. if the pending request queue is not full, shall send the Floor Queue Position Info message. The Floor Queue Position Info message:
 - a. shall include in the User ID field the MCPTT ID of the floor participant sending the Floor Request message;
 - b. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - c. shall include the position in the floor request queue in the Queue Info field; and
 - d. shall include the floor priority in the Queue Info field;
3. if the pending request queue is full, shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #7 (Queue full);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
4. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.8]

Upon receiving a Floor Queue Position Request message, the floor participant:

1. shall send the Floor Queue Position Info message. The Floor Queue Position Info message:
 - a. shall include the MCPTT ID of the queued floor participant in the Queued User ID field;
 - b. shall include the queue position and floor priority in the Queue Info field;
 - c. shall include the SSRC of floor participant sending Floor Queue Position Request message in SSRC of queue floor participant field; and
 - d. shall include the User ID of floor participant sending Floor Queue Position Request message in User ID field; and
2. remain in the 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.6]

When no more encoded media is received from the user and if at least one Floor Request message is stored (i.e. queuing mode is used in the session), the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall request the MCPTT client to stop sending RTP media packets towards other MCPTT clients;
4. shall send the Floor Granted message toward the other floor participants. The Floor Granted message:
 - a. shall include the MCPTT ID of the first floor participant in the queue in the User ID field;
 - b. shall include the SSRC of the first floor participant in the queue in the SSRC of the granted floor participant field;
 - c. shall remove the first floor participant from the queue;
 - d. for the remaining floor participants in the queue:
 - i. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - ii. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - iii. shall include the queue position of the floor participant in the Queue Info field; and

- iv. shall include the priority of the floor participant in the Queue Info field; and
 - e. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
5. shall set the stored SSRC of the current arbitrator to the SSRC of user to whom the floor was granted in the Floor Granted message;
 6. shall start timer T205 (Floor Granted) and shall initiate counter C205 (Floor Granted) to 1; and
 - 7 shall enter the 'O: pending granted' state.

[TS 24.380, clause 7.2.3.7.3]

On expiry of timer T205 (Floor Granted) and counter C205 (Floor Granted) is less than the upper limit, the floor participant:

1. shall send again the Floor Granted message toward the other floor participants. For each participant in the queue the Floor Granted message:
 - a. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - b. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - c. shall include the queue position of the floor participant in the Queue Info field; and
 - d. shall include the priority of the floor participant in the Queue Info field;
2. shall restart timer T205 (Floor Granted) and shall increment counter C205 (Floor Granted) by 1; and
3. shall remain in 'O: pending granted' state.

[TS 24.380, clause 7.2.3.7.5]

On the expiry of timer T205 (Floor Granted) for the configured upper limit of counter C205 (Floor Granted) with no request pending in the queue, the floor participant:

1. shall reset the value of counter C205 (Floor Granted) to 1;
2. shall start timer T230 (Inactivity);
3. shall clear the stored SSRC of the current arbitrator; and
4. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.3.4]

When a Floor Granted message is received and if the User ID in the Floor Granted message does not match its own User ID, the floor participant:

1. may provide a floor taken notification to the MCPTT user;
2. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating that this is a broadcast group call;
3. shall set the stored SSRC of the candidate arbitrator to the SSRC of user to whom the floor was granted in the Floor Granted message;
4. shall stop timer T230 (Inactivity);
5. shall start timer T203 (End of RTP media); and
6. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.4.3]

When a Floor Release message is received and if the SSRC in the Floor Release message matches with the stored SSRC of the current arbitrator or with the stored SSRC of the candidate arbitrator, the floor participant:

1. may provide floor idle notification to the MCPTT user.
2. shall request the MCPTT client to stop rendering received RTP media packets;
3. shall stop timer T203 (End of RTP media);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the candidate arbitrator;
6. shall clear the stored SSRC of the current arbitrator; and
7. shall enter 'O: silence' state;

[TS 24.380, clause 7.2.3.3.6]

When a Floor Taken message is received, the floor participant:

1. may provide a floor taken notification to the MCPTT user;
2. shall set the stored SSRC of the current arbitrator to the SSRC of granted floor participant field in the Floor Taken message;
3. shall stop timer T230 (Inactivity);
4. shall start timer T203 (End of RTP media); and
5. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.4.2]

If the floor participant receives an indication from the MCPTT user that the MCPTT user wants to send media, the floor participant:

1. shall send the Floor Request message to other clients. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall start timer T201 (Floor Request); and
4. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.4]

Upon receiving Floor Deny message, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Deny message matches the stored SSRC of current arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);
2. shall provide floor deny notification to the user;
3. shall restart the timer T203 (End of RTP media);
4. may display the floor deny reason to the user using information in the Reject Cause field; and
5. shall enter 'O: has no permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Deny message;
3. shall restart the timer T203 (End of RTP media);
4. shall provide floor deny notification to the user;
5. may display the floor deny reason to the user using information in the Reject Cause field; and
6. shall enter 'O: has no permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Deny message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Deny message;
3. shall clear the stored SSRC of the candidate arbitrator;
4. shall restart the timer T203 (End of RTP media);
5. shall provide floor deny notification to the user;
6. may display the floor deny reason to the user using information in the Reject Cause field; and
7. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.6.3]

Upon receiving Floor Queue Position Info message, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and the value in the SSRC of floor control server field as received in the Floor Queue Position Info message matches the stored SSRC of current arbitrator, the floor participant:

1. shall update the queue status;
2. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
3. shall stop timer T201 (Floor Request); and
4. shall enter 'O: queued' state.

Otherwise, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall update the queue status;
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Queue Position Info message;
3. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
4. shall stop timer T201 (Floor Request); and
5. shall enter 'O: queued' state.

Otherwise, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and the value in the SSRC of floor control server field as received in the Floor Queue Position Info message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall update the queue status;

2. shall set the stored SSRC of the current arbitrator to the value in the SSRC of the floor control server field as received in the Floor Queue Position Info message;
3. shall clear the stored SSRC of the candidate arbitrator;
4. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
5. shall stop timer T201 (Floor Request); and
6. shall enter 'O: queued' state.

[TS 24.380, clause 7.2.3.8.11]

Upon receipt of an indication from the MCPTT client to request the queue position information, the floor participant:

1. shall send the Floor Queue Position Request message; The Floor Queue Position Request message:
 - a. shall include the SSRC of sent Floor Request message in SSRC of floor participant field; and
 - b. shall include the own MCPTT User ID in User ID field;
2. shall initialize the counter C204 (Floor Queue Position request) with value set to 1;
3. shall start timer T204 (Floor Queue Position request); and
4. remain in the 'O: queued' state.

[TS 24.380, clause 7.2.3.8.3]

Upon receiving Floor Queue Position Info message, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Queue Position Info message matches the stored SSRC of current arbitrator, the floor participant:

1. shall update the queue position;
2. shall notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
3. shall stop timer T204 (Floor Queue Position request); and
4. shall remain in 'O: queued' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Queue Position Info message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall update the queue position;
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Queue Position Info message;
3. shall clear the stored SSRC of the candidate arbitrator;
4. shall notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
5. shall stop timer T204 (Floor Queue Position request); and
6. shall remain in 'O: queued' state.

[TS 24.380, clause 7.2.3.8.6]

Upon receiving Floor Granted message and if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;

2. shall start timer T233(Pending user action), if not running already;
3. shall notify the MCPTT user about of the floor grant;
4. if the Floor Indicator field is included, and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
5. shall remain in 'O: queued' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;
2. shall start timer T233(Pending user action), if not running already;
3. shall notify the MCPTT user about of the floor grant;
4. shall set the stored SSRC of the current arbitrator to its own SSRC;
5. shall clear the stored SSRC of the candidate arbitrator;
6. if the Floor Indicator field is included, and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall remain in 'O: queued' state.

[TS 24.380, clause 7.2.3.8.8]

If the floor participant receives an indication from the user that the user wants to send media and the timer T233 (pending user action) is running, the floor participant:

1. shall stop the timer T233 (Pending user action);
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and
3. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.7]

Upon receiving a Floor Request message which is pre-emptive as determined by subclause 4.1.1.5, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall request the MCPTT client to stop sending RTP media packets towards other MCPTT clients;
4. shall send a Floor Granted message towards the other floor participants. The Floor Granted message:
 - a. shall include the MCPTT ID of the Floor Request message received in the User ID field;
 - b. shall include the SSRC of floor participant sending the Floor Request message in the SSRC of floor control server field; and
 - c. if the value of "<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.483 [4] is set to "true", for each floor participant in the queue:
 - i. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - ii. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - iii. shall include the queue position of the floor participant in the Queue Info field; and
 - iv. shall include the priority of the floor participant in the Queue Info field;
5. shall start timer T205 (Floor Granted) and shall initiate counter C205 (Floor Granted) to 1;

6. shall set the stored SSRC of the current floor arbitrator to the SSRC of the user to whom the floor was granted in the Floor Granted message; and
7. shall enter the 'O: pending granted' state.

[TS 24.380, clause 7.2.3.6.9]

On expiry of timer T201 (Floor Request) if the counter C201 (Floor Request) has not reached its upper limit, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the own MCPTT user in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall restart the timer T201 (Floor Request) and increment counter C201 (Floor Request) by 1; and
3. shall remain in the 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.6]

When timer T201 (Floor Request) expires and counter C201 (Floor Request) reaches its upper limit, the floor participant:

1. shall send the Floor Taken message toward the other floor participants. The Floor Taken message:
 - a. shall include the floor participant's own SSRC in the SSRC of the granted floor participant field;
 - b. shall include the floor participant's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC;
3. shall stop timer T203 (End of RTP media), if running; and
4. shall enter 'O: has permission' state.

7.1.1.3 Test description

7.1.1.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.1.3.2

Test procedure sequence

Table 7.1.1.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a GROUP CALL PROBE message to determine the current call status of the group? (NOTE 2) | --> | GROUP CALL PROBE | 1 | P |
| - | EXCEPTION: Step 5 is executed a total of 3 times | - | - | - | - |
| 5 | Check: At the expiration of timer TFG3 (call probe retransmission), does the UE (MCPTT Client) send a retransmission of the GROUP CALL PROBE sent in step 4? | --> | GROUP CALL PROBE | 1 | P |
| 6 | Check: At the expiration of timer TFG1 (wait for call announcement), and after receiving no response to the GROUP CALL PROBE, does the UE (MCPTT Client) send a GROUP CALL ANNOUNCEMENT message to initiate an off-network basic group call? | --> | GROUP CALL ANNOUNCEMENT | 1 | P |
| 7 | The SS-UE1 (MCPTT client) sends a GROUP CALL ACCEPT accepting the GROUP CALL ANNOUNCEMENT | <-- | GROUP CALL ACCEPT | - | - |
| 8 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 2 | P |
| 9 | Make the UE (MCPTT User) release the floor (NOTE 1), (NOTE 3) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 2 | P |
| 11 | Make the UE (MCPTT User) request the floor (NOTE 1), (NOTE 4) | - | - | - | - |
| 12 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 13 | The SS-UE1 (MCPTT client) sends a Floor Granted message granting the floor to the UE (MCPTT Client) | <-- | Floor Granted | - | - |
| 14 | The SS-UE1 (MCPTT client), having the same priority as the UE (MCPTT Client), sends a Floor Request message to the UE (MCPTT Client) with the F bit in the Floor Indication field set to '0' indicating that the requesting UE does not support queuing | <-- | Floor Request | - | - |

| | | | | | |
|----|--|-----|------------------------------|---|---|
| 15 | Check: Does the UE (MCPTT Client) send a Floor Deny message to the sender of the Floor Request message with the Reject Cause field set to #1 (Another MCPTT client has permission)? | --> | Floor Deny | 2 | P |
| 16 | The SS-UE1 (MCPTT client), having the same priority as the UE (MCPTT Client), sends a Floor Request message to the UE (MCPTT Client) with the F bit in the Floor Indication field set to '1' | <-- | Floor Request | - | - |
| 17 | Check: Does the UE (MCPTT Client) add the requester to the queue and send a Floor Queue Position Info message to the sender of the Floor Request message? | --> | Floor Queue Position Info | 2 | P |
| 18 | The SS-UE1 (MCPTT client) sends a Floor Queue Position Request message to the UE (MCPTT Client) | <-- | Floor Queue Position Request | - | - |
| 19 | Check: Does the UE (MCPTT Client) respond to the Floor Queue Position Request message with a Floor Queue Position Info message? | --> | Floor Queue Position Info | 2 | P |
| 20 | Make the UE (MCPTT User) release the floor (NOTE 1), (NOTE 5) | - | - | - | - |
| 21 | Check: Does the UE (MCPTT Client) send a Floor Granted message to the floor participants indicating the queued participant now has the floor? (NOTE 6) | --> | Floor Granted | 2 | P |
| - | EXCEPTION: Step 22 is executed a total of 3 times | - | - | - | - |
| 22 | Check: Upon expiry of timer T205 (Floor Granted) and while counter C205 (Floor Granted) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Granted message send in step 21? | --> | Floor Granted | 2 | P |
| 23 | Void | - | - | 2 | P |
| 24 | The SS-UE1 (MCPTT client) sends a Floor Taken message to the UE (MCPTT Client) | <-- | Floor Taken | - | - |
| 25 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 26 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 27 | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 28 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 29 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 30 | The SS-UE1 (MCPTT client) responds with a Floor Queue Position Info message and places the UE (MCPTT Client) in the queue | <-- | Floor Queue Position Info | - | - |
| 31 | Make the UE (MCPTT User) request the queue position of the UE (MCPTT Client) (NOTE 1) | - | - | - | - |
| 32 | Check: Does the UE (MCPTT Client) send a Floor Queue Position Request message? | --> | Floor Queue Position Request | 2 | P |
| 33 | The SS-UE1 (MCPTT client) responds with a Floor Queue Position Info message | <-- | Floor Queue Position Info | - | - |
| 34 | The SS-UE1 (MCPTT client) sends a Floor Granted message to the UE (MCPTT Client) granting the floor to the UE (MCPTT Client) | <-- | Floor Granted | - | - |
| 35 | Check: Does the UE (MCPTT Client) notify the user (MCPTT User) of the floor grant? (NOTE 1) | - | - | 2 | P |

| | | | | | |
|----|--|-----|--------------------------|---|---|
| 36 | Make the UE (MCPTT User) accept the floor grant (NOTE 1) | - | - | - | - |
| 37 | The SS-UE1 (MCPTT client), with a higher priority than the UE (MCPTT Client), sends a Floor Request message with preemption | <-- | Floor Request | - | - |
| 38 | Check: Does the UE (MCPTT Client) respond by sending a Floor Granted message? (NOTE 6) | --> | Floor Granted | 2 | P |
| - | EXCEPTION: Step 39 is executed a total of 3 times | - | - | - | - |
| 39 | Check: Upon expiry of timer T205 (Floor Granted) and while counter C205 (Floor Granted) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Granted message send in step 38? | --> | Floor Granted | 2 | P |
| 40 | Void | - | - | 2 | P |
| 41 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 42 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? (NOTE 7) | --> | Floor Request | 2 | P |
| - | EXCEPTION: Step 43 is executed a total of 2 times | - | - | - | - |
| 43 | Check: Upon expiry of timer T201 (Floor Request) and while counter C201 (Floor Request) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Request message send in step 42? | --> | Floor Request | 2 | P |
| 44 | Check: Upon expiry of timer T201 (Floor Request) and with counter C201 (Floor Request) equal to its maximum value, does the UE (MCPTT Client) send a Floor Taken message? | --> | Floor Taken | 2 | P |
| 45 | Make the UE (MCPTT User) release the floor (NOTE 1) | - | - | - | - |
| 46 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 2 | P |
| 47 | Make the UE (MCPTT Client) upgrade the off-network group call to an emergency call (NOTE 1) | - | - | - | - |
| 48 | Check: Does the UE (MCPTT Client) send a GROUP CALL ANNOUNCEMENT to upgrade the call to an emergency call? | --> | GROUP CALL ANNOUNCEMENT | 3 | P |
| 49 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 4 | P |
| 50 | Make the UE (MCPTT User) release the floor (NOTE 1) | - | - | - | - |
| 51 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 4 | P |
| 52 | Make the UE (MCPTT Client) downgrade the off-network group call from an emergency call (NOTE 1) | - | - | - | - |
| 53 | Check: Does the UE (MCPTT Client) send a GROUP CALL EMERGENCY END to downgrade the emergency call? | --> | GROUP CALL EMERGENCY END | 5 | P |
| 54 | Make the UE (MCPTT Client) upgrade the off-network group call to an imminent peril call (NOTE 1) | - | - | - | - |
| 55 | Check: Does the UE (MCPTT Client) send a GROUP CLL ANNOUNCEMENT to upgrade the call to an imminent peril call? | --> | GROUP CALL ANNOUNCEMENT | 6 | P |

| | | | | | |
|----|---|-----|--------------------------------|---|---|
| 56 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 7 | P |
| 57 | Make the UE (MCPTT User) release the floor (NOTE 1) | - | - | - | - |
| 58 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 7 | P |
| 59 | Make the UE (MCPTT Client) downgrade the off-network group call from an imminent peril call (NOTE 1) | - | - | - | - |
| 60 | Check: Does the UE (MCPTT Client) send a GROUP CALL IMMEDIATE PERIL END to downgrade the imminent peril call? | --> | GROUP CALL IMMEDIATE PERIL END | 8 | P |
| 61 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

NOTE 2: Timer TFG3 (call probe retransmission)=40ms as defined in TS 36.579-1 [2], Table 5.5.8.1-1 and TFG1 (wait for call announcement)=150ms as defined in TS 36.579-1 [2], Table 5.5.8.1-1 are started upon the sending of the GROUP CALL PROBE message

NOTE 3: If the MCPTT User does not release the floor before timer T207 (Stop talking) expires, then the MCPTT Client will enter the 'O: silence' state per TS 24.380 [10] and the remaining steps will not be valid. Timer T206 (Stop talking warning) is started upon the sending of the Floor Granted message. Timer T207 (Stop talking) starts upon the expiration of Timer T206 (Stop talking warning). Timer T206 (Stop talking warning)=10s is set to TransmitTimeout=60s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1, minus TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. Timer T207 (Stop talking)=50s is set to TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified.

NOTE 4: If the MCPTT User does not perform an action before timer T230 (Inactivity) expires, then the MCPTT Client will enter the 'O: Start-stop' state per 24.380 [10] and the remaining steps will not be valid. Timer T230 (Inactivity) is started upon the sending of the Floor Release message. Timer T230 (Inactivity)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified.

NOTE 5: If the MCPTT User does not release the floor before timer T207 (Stop talking) expires, then the MCPTT Client will enter the 'O: silence' state per 24.380 [10] and the remaining steps will not be valid. Timer T206 (Stop talking warning) is started upon the receiving of the Floor Granted message in step 13. Timer T207 (Stop talking) starts upon the expiration of Timer T206 (Stop talking warning). Timer T206 (Stop talking warning)=10s is set to TransmitTimeout=60s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1, minus TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. Timer T207 (Stop talking)=50s is set to TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified.

NOTE 6: Timer T205 (Floor Granted) and Counter C205 (Floor Granted) are started upon the sending of the Floor Granted message. Timer T205 (Floor Granted)=1s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. Counter C205 (Floor Granted) is set to 1 and the maximum value of C205 (Floor Granted)=4, as defined in TS 36.579-1 [2], Table 5.5.8.1-1.

NOTE 7: Timer T201 (Floor Request) and Counter C201 (Floor Request) are started upon the sending of the Floor Request message. Timer T201 (Floor Request)=1s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. Counter 201 (Floor Request) is set to 1 and the maximum value of Counter C201 (Floor Request)=3, as defined in TS 36.579-1 [2], Table 5.5.8.1-1.

7.1.1.3.3 Specific message contents

Table 7.1.1.3.3-1: GROUP CALL ANNOUNCEMENT (step 48, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000011" | Emergency group call | |

Table 7.1.1.3.3-2: GROUP CALL ANNOUNCEMENT (step 55, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent peril group call | |

Table 7.1.1.3.3-3: Floor Granted (step 8, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-4: Floor Granted (steps 13, 34, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '1000010000000000' | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-5: Floor Granted (steps 21, 22, 38, 39, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| SSRC of granted floor participant | "10000000 11111111 00000000 10000000" | The SSRC of the floor participant being granted the floor, in this case the SSRC of MCPTT-client-B | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-6: Floor Granted (step 49, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| Floor priority | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | '00010X0000000000' | bit D=1 (Emergency call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-7: Floor Granted (step 56, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| Floor priority | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | '00001X0000000000' | bit E=1 (Imminent Peril call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-8: Floor Release (steps 10, 46, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-9: Floor Release (step 51, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010X0000000000' | bit D=1 (Emergency call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-10: Floor Release (step 58, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00001X0000000000' | bit E=1 (Imminent Peril call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-11: Floor Request (steps 12, 26, 29, 42, 43, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-12: Floor Request (step 14, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000000000000000" | bit A=1 (Normal call) bit F=0 (Queueing not supported) | |

Table 7.1.1.3.3-13: Floor Request (step 16, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-14: Floor Request (step 37, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Priority | "12" | Priority is higher than mcptt-client-A | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-15: Floor Deny (step 15, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|----------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reject Cause | | | |
| Reject Cause | any allowed value | | |
| Reject Phrase | not present or any allowed value | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-16: Floor Deny (step 27, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-17: Floor Queue Position Info (steps 17, 19, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.10-1 condition OFF-NETWORK | | | |
|--|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_A_ID | | |
| Queued User ID | | | |
| Queued User ID | Px_MCPTT_User_B_ID | | |
| Queue Info | | | |
| Queue Position Info | "1" | | |
| Queue Priority Level | any allowed value | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.1.3.3-18: Floor Queue Position Info (steps 30, 33, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.10-1 condition OFF-NETWORK | | | |
|--|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Queued User ID | | | |
| Queued User ID | Px_MCPTT_User_A_ID | | |
| Queue Info | | | |
| Queue Position Info | "1" | | |
| Queue Priority Level | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | '1000010000000000' | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-19: Floor Queue Position Request (step 18, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.9-1 condition OFF-NETWORK | | | |
|---|--------------------|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |

Table 7.1.1.3.3-20: Floor Taken (step 24, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Granted Party's Identity | | | |
| Granted Party's Identity | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | '1000010000000000' | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.1.3.3-21: Floor Taken (step 44, Table 7.1.1.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 condition OFF-NETWORK | | | |
|---|--|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Granted Party's Identity | | | |
| Granted Party's Identity | Px_MCPTT_User_A_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |
| SSRC of granted floor participant | "10000000 11111111 00000000 00000001" | | |

7.1.2 Off-network / Group Call / Floor Control / Upgrade to Emergency Call / Downgrade from Emergency / Upgrade to Imminent Peril / Downgrade from Imminent Peril / Release Call / Client Terminated (CT)

7.1.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
receive group calls in off-network environment, and the UE configured that user acknowledgement is
not required, and the UE (MCPTT Client) is in an off-network environment }
ensure that {
  when { UE (MCPTT Client) receives a GROUP CALL ANNOUNCEMENT message with Confirm mode indication
present }
  then { UE (MCPTT Client) enters the "S3: part of ongoing call" state and sends a GROUP CALL
ACCEPT message}
}
```

(2)

```
with { UE (MCPTT Client) being in an off-network MCPTT Pre-arranged Group Call }
ensure that {
  when { the MCPTT User (MCPTT Client) engages in communication with the invited MCPTT User(s) }
```

```

    then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator (Floor Request during a talk burst, Floor granting/release, Floor idle, Floor
deny, Floor taken/revoked, Floor request queued and queue handling) }
}

```

(3)

```

with { UE (MCPTT Client) being in an upgraded off-network emergency group call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator }
}

```

(4)

```

with { UE (MCPTT Client) being in an upgraded off-network imminent peril group call }
ensure that {
  when { the MCPTT User (MCPTT Client) continues communication with the invited MCPTT User(s) }
  then { UE (MCPTT Client) respects the floor control imposed by the floor control
entity/arbitrator }
}

```

7.1.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.3.3, 10.2.3.4.5, 10.2.3.4.7.2, 10.2.3.4.8.3, 10.2.3.4.8.6, 10.2.2.4.5.4, TS 24.380 clauses 7.2.3.2.7, 7.2.3.5.5, 7.2.3.3.2, 7.2.3.6.7, 7.2.3.5.4, 7.2.3.5.8, 7.2.3.5.6, 7.2.3.7.3, 7.2.3.7.5, 7.2.3.3.4, 7.2.3.4.3, 7.2.3.3.6, 7.2.3.4.2, 7.2.3.6.4, 7.2.3.6.3, 7.2.3.8.11, 7.2.3.8.3, 7.2.3.8.6, 7.2.3.5.7, 7.2.3.6.9, 7.2.3.6.6. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.3.3]

When in the "S1: start-stop" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE not matching MCPTT group ID of the call stored for other state machines, the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL ANNOUNCEMENT message as the MCPTT group ID of the call;
- 6) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 7) shall create a call type control state machine as described in subclause 10.2.3.2;
- ...
- 9) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
 - a) shall establish a media session based on the stored SDP body of the call;
 - b) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
 - c) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE:
 - i) shall generate a GROUP CALL ACCEPT message as specified in subclause 15.1.4. In the GROUP CALL ACCEPT message, the MCPTT client:

- A) shall set the Call identifier IE to the stored call identifier of the call;
 - B) shall set the Sending MCPTT user ID IE to own MCPTT user id;
 - C) shall set the Call type IE to the stored current call type associated with the call type control state machine; and
 - D) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
- ii) shall send the GROUP CALL ACCEPT message as specified in subclause 10.2.1.1.1;
- d) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
 - e) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
 - f) shall enter the "S3: part of ongoing call" state.

[TS 24.379, clause 10.2.3.4.5]

When in the "T0: waiting for the call to establish" state, upon receipt of a GROUP CALL ANNOUNCEMENT message by an idle MCPTT client when MCPTT user acknowledgement is not required, the MCPTT client:

- 1) shall set the stored last call type change time to the Last call type change time IE of the GROUP CALL ANNOUNCEMENT message;
- 2) shall set the last user to change call type to the Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message;
- 3) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "EMERGENCY GROUP CALL":
 - a) shall set the stored current call type to "EMERGENCY GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - c) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and
 - d) shall enter "T1: in-progress emergency group call" state;
- 4) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "IMMINENT PERIL GROUP CALL":
 - a) shall set the stored current call type to "IMMINENT PERIL GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45];
 - c) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - d) shall enter "T3: in-progress imminent peril group call" state; and
- 5) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "BASIC GROUP CALL":
 - a) shall set the stored current call type to "BASIC GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45]; and
 - c) shall enter "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.3.4.7.2]

When in the "T1: in-progress emergency group call" state or "T2: in-progress basic group call" state or "T3: in-progress imminent peril group call" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE matching with MCPTT group ID of the ongoing call and the Call Identifier IE being the same as the stored call identifier of the call, the MCPTT client:

- 1) if the stored last user to change call type of the call is same as the Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message and the stored last call type change time is smaller than Last call type change time IE of the GROUP CALL ANNOUNCEMENT message:
 - a) shall set the stored last call type change time of the call to Last call type change time IE of the GROUP CALL ANNOUNCEMENT message;
 - b) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "EMERGENCY GROUP CALL" and the stored call type is other than "EMERGENCY GROUP CALL":
 - i) shall set the stored current call type to "EMERGENCY GROUP CALL";
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - iii) shall stop timer TFG14 (implicit downgrade imminent peril), if running;
 - iv) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and
 - v) shall enter "T1: in-progress emergency group call" state;
 - c) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "IMMINENT PERIL GROUP CALL" and the stored call type is other than "IMMINENT PERIL GROUP CALL":
 - i) shall set the stored current call type to "IMMINENT PERIL GROUP CALL";
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45];
 - iii) shall stop timer TFG13 (implicit downgrade emergency), if running;
 - iv) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - v) shall enter "T3: in-progress imminent peril group call" state; and
 - d) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "BASIC GROUP CALL" and the stored call type is other than "BASIC GROUP CALL":
 - i) shall set the stored current call type to "BASIC GROUP CALL";
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45];
 - iii) shall stop timer TFG13 (implicit downgrade emergency), if running;
 - iv) shall stop timer TFG14 (implicit downgrade imminent peril), if running; and
 - v) shall enter "T2: in-progress basic group call" state; and
- 2) if the stored last user to change call type of the call is different from the Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message and:
 - a) if the stored call type is same as Call type IE in the received GROUP CALL ANNOUNCEMENT message and the stored last call type change time is smaller than Last call type change time IE of the GROUP CALL ANNOUNCEMENT message:
 - i) shall set the stored last call type change time of the call to Last call type change time IE of the GROUP CALL ANNOUNCEMENT message; and

- ii) shall set the stored last user to change call type of the call to Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message;
- b) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "EMERGENCY GROUP CALL" and the stored call type is other than "EMERGENCY GROUP CALL":
 - i) shall set the stored last call type change time of the call to Last call type change time IE of the GROUP CALL ANNOUNCEMENT message;
 - ii) shall set the stored last user to change call type of the call to Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message;
 - iii) shall set the stored current call type to "EMERGENCY GROUP CALL";
 - iv) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - v) shall stop timer TFG14 (implicit downgrade imminent peril), if running;
 - vi) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and
 - vii) shall enter "T1: in-progress emergency group call" state; and
- c) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "IMMINENT PERIL GROUP CALL" and the stored call type is "BASIC GROUP CALL":
 - i) shall set the stored last call type change time of the call to Last call type change time IE of the GROUP CALL ANNOUNCEMENT message;
 - ii) shall set the stored last user to change call type of the call to Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message;
 - iii) shall set the stored current call type to "IMMINENT PERIL GROUP CALL";
 - iv) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45];
 - v) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - vi) shall enter "T3: in-progress imminent peril group call" state; and
- d) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "BASIC GROUP CALL" and the stored call type is other than "BASIC GROUP CALL":
 - i) shall set the stored current call type to "BASIC GROUP CALL";
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.483 [45];
 - iii) shall stop timer TFG13 (implicit downgrade emergency), if running;
 - iv) shall stop timer TFG14 (implicit downgrade imminent peril), if running; and
 - v) shall enter "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.3.4.8.3]

When in the "T1: in-progress emergency group call" state, upon receiving GROUP CALL EMERGENCY END message, the MCPTT client:

- 1) shall set the stored last call type change time to the Last call type change time IE of the received GROUP CALL EMERGENCY END message;
- 2) shall set the stored last user to change call type to the Last user to change call type IE of the received GROUP CALL EMERGENCY END message;

- 3) shall set the stored current call type to "BASIC GROUP CALL";
- 4) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45];
- 5) shall stop timer TFG13 (implicit downgrade emergency); and
- 6) shall enter the "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.3.4.8.6]

When in the "T3: in-progress imminent peril group call" state, upon receiving GROUP CALL IMMEDIATE PERIL END message, the MCPTT client:

- 1) shall set the stored last call type change time to the Last call type change time IE of the received GROUP CALL IMMEDIATE PERIL END message;
- 2) shall set the stored last user to change call type to the Last user to change call type IE of the received GROUP CALL IMMEDIATE PERIL END message;
- 3) shall set the stored current call type to "BASIC GROUP CALL";
- 4) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45];
- 5) shall stop timer TFG14 (implicit downgrade imminent peril); and
- 6) shall enter the "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.2.4.5.4]

When in the "S6: ignoring incoming call announcements" state, upon expiration of timer TFG5 (not present incoming call announcements), the MCPTT client:

- 1) shall release the stored SDP body of the call;
- 2) shall release the stored call identifier of the call;
- 3) shall release the stored originating MCPTT user ID of the call;
- 4) shall release the stored refresh interval of the call;
- 5) shall release the stored MCPTT group ID of the call;
- 6) shall release the call start time of the call;
- 7) shall destroy the call type control state machine as specified in subclause 10.2.3.4.10 or 10.2.3.4.11; and
- 8) shall enter the "S1: start-stop" state.

[TS 24.380, clause 7.2.3.2.7]

When a Floor Granted message is received and if the User ID in the Floor Granted message does not match its own User ID, the floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. may provide a floor taken notification to the MCPTT user;
3. shall set the stored SSRC of the candidate arbitrator to the SSRC of user to whom the floor was granted in the Floor Granted message;
4. shall start timer T203 (End of RTP media); and
5. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.5.5]

Upon receiving an indication from the MCPTT user to release permission to send RTP media, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall send a Floor Release message towards other floor participants, if no queued requests exist: The Floor Release message:
 - a. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - b. if the session is not initiated as a broadcast group call with the B-bit set to '1' (Broadcast group call), shall include a Floor Indicator field set to '0' (normal call);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the current arbitrator; and
6. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.3.2]

If the floor participant receives an indication from the MCPTT user to send media, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the <User ID> value of the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall stop timer T230 (Inactivity);
4. shall start timer T201 (Floor Request); and
5. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.7]

Upon receiving Floor Granted message and if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC;
3. shall stop timer T203 (End of RTP media), if running;
4. shall stop timer T201 (Floor Request);
5. may provide a floor granted notification to the MCPTT user;
6. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall enter 'O: has permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall set the stored SSRC of the current arbitrator to its own SSRC;

2. shall stop timer T203 (End of RTP media);
3. shall stop timer T201 (Floor Request);
4. may provide a floor granted notification to the MCPTT user;
5. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
6. shall enter 'O: has permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall set the stored SSRC of the current arbitrator to its own SSRC;
2. shall stop timer T203 (End of RTP media);
3. shall stop timer T201 (Floor Request);
4. may provide a floor granted notification to the MCPTT user;
5. shall clear the stored SSRC of the candidate arbitrator;
6. if the Floor Indicator field is included and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.4]

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, in a session where:

1. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "false"; or
2. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" but the F-bit in the Floor Indicator field is set to '0' (i.e. indicating that queuing of floor requests is not supported) or the Floor Indicator field is not included in the Floor Request message;

then the floor participant:

1. shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
2. shall remain in 'O: has permission' state.

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, and the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" and the F-bit in the Floor Indicator field is set to '1' (i.e. indicating that queuing of the floor requests is supported) in the Floor Request message, the floor participant:

1. shall store the received Floor Request messages;
2. if the pending request queue is not full, shall send the Floor Queue Position Info message. The Floor Queue Position Info message:
 - a. shall include in the User ID field the MCPTT ID of the floor participant sending the Floor Request message;

- b. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - c. shall include the position in the floor request queue in the Queue Info field; and
 - d. shall include the floor priority in the Queue Info field;
3. if the pending request queue is full, shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #7 (Queue full);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
 4. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.8]

Upon receiving a Floor Queue Position Request message, the floor participant:

1. shall send the Floor Queue Position Info message. The Floor Queue Position Info message:
 - a. shall include the MCPTT ID of the queued floor participant in the Queued User ID field;
 - b. shall include the queue position and floor priority in the Queue Info field;
 - c. shall include the SSRC of floor participant sending Floor Queue Position Request message in SSRC of queue floor participant field; and
 - d. shall include the User ID of floor participant sending Floor Queue Position Request message in User ID field; and
2. remain in the 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.6]

When no more encoded media is received from the user and if at least one Floor Request message is stored (i.e. queuing mode is used in the session), the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall request the MCPTT client to stop sending RTP media packets towards other MCPTT clients;
4. shall send the Floor Granted message toward the other floor participants. The Floor Granted message:
 - a. shall include the MCPTT ID of the first floor participant in the queue in the User ID field;
 - b. shall include the SSRC of the first floor participant in the queue in the SSRC of the granted floor participant field;
 - c. shall remove the first floor participant from the queue;
 - d. for the remaining floor participants in the queue:
 - i. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - ii. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - iii. shall include the queue position of the floor participant in the Queue Info field; and
 - iv. shall include the priority of the floor participant in the Queue Info field; and
 - e. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;

5. shall set the stored SSRC of the current arbitrator to the SSRC of user to whom the floor was granted in the Floor Granted message;
6. shall start timer T205 (Floor Granted) and shall initiate counter C205 (Floor Granted) to 1; and
- 7 shall enter the 'O: pending granted' state.

[TS 24.380, clause 7.2.3.7.3]

On expiry of timer T205 (Floor Granted) and counter C205 (Floor Granted) is less than the upper limit, the floor participant:

1. shall send again the Floor Granted message toward the other floor participants. For each participant in the queue the Floor Granted message:
 - a. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - b. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - c. shall include the queue position of the floor participant in the Queue Info field; and
 - d. shall include the priority of the floor participant in the Queue Info field;
2. shall restart timer T205 (Floor Granted) and shall increment counter C205 (Floor Granted) by 1; and
3. shall remain in 'O: pending granted' state.

[TS 24.380, clause 7.2.3.7.5]

On the expiry of timer T205 (Floor Granted) for the configured upper limit of counter C205 (Floor Granted) with no request pending in the queue, the floor participant:

1. shall reset the value of counter C205 (Floor Granted) to 1;
2. shall start timer T230 (Inactivity);
3. shall clear the stored SSRC of the current arbitrator; and
4. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.3.4]

When a Floor Granted message is received and if the User ID in the Floor Granted message does not match its own User ID, the floor participant:

1. may provide a floor taken notification to the MCPTT user;
2. if the Floor Indicator field is included and the B-bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating that this is a broadcast group call;
3. shall set the stored SSRC of the candidate arbitrator to the SSRC of user to whom the floor was granted in the Floor Granted message;
4. shall stop timer T230 (Inactivity);
5. shall start timer T203 (End of RTP media); and
6. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.4.3]

When a Floor Release message is received and if the SSRC in the Floor Release message matches with the stored SSRC of the current arbitrator or with the stored SSRC of the candidate arbitrator, the floor participant:

1. may provide floor idle notification to the MCPTT user.
2. shall request the MCPTT client to stop rendering received RTP media packets;

3. shall stop timer T203 (End of RTP media);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the candidate arbitrator;
6. shall clear the stored SSRC of the current arbitrator; and
7. shall enter 'O: silence' state;

[TS 24.380, clause 7.2.3.3.6]

When a Floor Taken message is received, the floor participant:

1. may provide a floor taken notification to the MCPTT user;
2. shall set the stored SSRC of the current arbitrator to the SSRC of granted floor participant field in the Floor Taken message;
3. shall stop timer T230 (Inactivity);
4. shall start timer T203 (End of RTP media); and
5. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.4.2]

If the floor participant receives an indication from the MCPTT user that the MCPTT user wants to send media, the floor participant:

1. shall send the Floor Request message to other clients. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall start timer T201 (Floor Request); and
4. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.4]

Upon receiving Floor Deny message, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Deny message matches the stored SSRC of current arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);
2. shall provide floor deny notification to the user;
3. shall restart the timer T203 (End of RTP media);
4. may display the floor deny reason to the user using information in the Reject Cause field; and
5. shall enter 'O: has no permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);

2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Deny message;
3. shall restart the timer T203 (End of RTP media);
4. shall provide floor deny notification to the user;
5. may display the floor deny reason to the user using information in the Reject Cause field; and
6. shall enter 'O: has no permission' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Deny message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall stop the timer T201 (Floor Request);
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Deny message;
3. shall clear the stored SSRC of the candidate arbitrator;
4. shall restart the timer T203 (End of RTP media);
5. shall provide floor deny notification to the user;
6. may display the floor deny reason to the user using information in the Reject Cause field; and
7. shall enter 'O: has no permission' state.

[TS 24.380, clause 7.2.3.6.3]

Upon receiving Floor Queue Position Info message, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and the value in the SSRC of floor control server field as received in the Floor Queue Position Info message matches the stored SSRC of current arbitrator, the floor participant:

1. shall update the queue status;
2. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
3. shall stop timer T201 (Floor Request); and
4. shall enter 'O: queued' state.

Otherwise, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and there is no stored SSRC of the current arbitrator, the floor participant:

1. shall update the queue status;
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Queue Position Info message;
3. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
4. shall stop timer T201 (Floor Request); and
5. shall enter 'O: queued' state.

Otherwise, if the <User ID> value in the Queued User ID field matches its own MCPTT ID and the value in the SSRC of floor control server field as received in the Floor Queue Position Info message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall update the queue status;
2. shall set the stored SSRC of the current arbitrator to the value in the SSRC of the floor control server field as received in the Floor Queue Position Info message;

3. shall clear the stored SSRC of the candidate arbitrator;
4. may notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
5. shall stop timer T201 (Floor Request); and
6. shall enter 'O: queued' state.

[TS 24.380, clause 7.2.3.8.11]

Upon receipt of an indication from the MCPTT client to request the queue position information, the floor participant:

1. shall send the Floor Queue Position Request message; The Floor Queue Position Request message:
 - a. shall include the SSRC of sent Floor Request message in SSRC of floor participant field; and
 - b. shall include the own MCPTT User ID in User ID field;
2. shall initialize the counter C204 (Floor Queue Position request) with value set to 1;
3. shall start timer T204 (Floor Queue Position request); and
4. remain in the 'O: queued' state.

[TS 24.380, clause 7.2.3.8.3]

Upon receiving Floor Queue Position Info message, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Queue Position Info message matches the stored SSRC of current arbitrator, the floor participant:

1. shall update the queue position;
2. shall notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
3. shall stop timer T204 (Floor Queue Position request); and
4. shall remain in 'O: queued' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Queue Position Info message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall update the queue position;
2. shall set the stored SSRC of the current arbitrator to the SSRC of the floor control server as received in the Floor Queue Position Info message;
3. shall clear the stored SSRC of the candidate arbitrator;
4. shall notify the MCPTT user about the queue position received in the <Queue position info> value in the Queue Info field;
5. shall stop timer T204 (Floor Queue Position request); and
6. shall remain in 'O: queued' state.

[TS 24.380, clause 7.2.3.8.6]

Upon receiving Floor Granted message and if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;
2. shall start timer T233(Pending user action), if not running already;
3. shall notify the MCPTT user about of the floor grant;

4. if the Floor Indicator field is included, and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
5. shall remain in 'O: queued' state.

Otherwise, if the <User ID> value in the User ID field matches its own MCPTT ID and SSRC of floor participant sending the Floor Granted message matches the stored SSRC of candidate arbitrator, the floor participant:

1. shall request the MCPTT client to stop rendering received RTP media packets;
2. shall start timer T233(Pending user action), if not running already;
3. shall notify the MCPTT user about of the floor grant;
4. shall set the stored SSRC of the current arbitrator to its own SSRC;
5. shall clear the stored SSRC of the candidate arbitrator;
6. if the Floor Indicator field is included, and the B bit is set to '1' (Broadcast group call), shall provide a notification to the user indicating the type of call; and
7. shall remain in 'O: queued' state.

[TS 24.380, clause 7.2.3.8.8]

If the floor participant receives an indication from the user that the user wants to send media and the timer T233 (pending user action) is running, the floor participant:

1. shall stop the timer T233 (Pending user action);
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and
3. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.7]

Upon receiving a Floor Request message which is pre-emptive as determined by subclause 4.1.1.5, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall request the MCPTT client to stop sending RTP media packets towards other MCPTT clients;
4. shall send a Floor Granted message towards the other floor participants. The Floor Granted message:
 - a. shall include the MCPTT ID of the Floor Request message received in the User ID field;
 - b. shall include the SSRC of floor participant sending the Floor Request message in the SSRC of floor control server field; and
 - c. if the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.483 [4] is set to "true", for each floor participant in the queue:
 - i. shall include the MCPTT ID of the floor participant in the Queued User ID field;
 - ii. shall include the SSRC of the floor participant in the SSRC of queued floor participant field;
 - iii. shall include the queue position of the floor participant in the Queue Info field; and
 - iv. shall include the priority of the floor participant in the Queue Info field;
5. shall start timer T205 (Floor Granted) and shall initiate counter C205 (Floor Granted) to 1;
6. shall set the stored SSRC of the current floor arbitrator to the SSRC of the user to whom the floor was granted in the Floor Granted message; and

7. shall enter the 'O: pending granted' state.

[TS 24.380, clause 7.2.3.6.9]

On expiry of timer T201 (Floor Request) if the counter C201 (Floor Request) has not reached its upper limit, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the own MCPTT user in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall restart the timer T201 (Floor Request) and increment counter C201 (Floor Request) by 1; and
3. shall remain in the 'O: pending request' state.

[TS 24.380, clause 7.2.3.6.6]

When timer T201 (Floor Request) expires and counter C201 (Floor Request) reaches its upper limit, the floor participant:

1. shall send the Floor Taken message toward the other floor participants. The Floor Taken message:
 - a. shall include the floor participant's own SSRC in the SSRC of the granted floor participant field;
 - b. shall include the floor participant's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall set the stored SSRC of the current floor arbitrator to its own SSRC;
3. shall stop timer T203 (End of RTP media), if running; and
4. shall enter 'O: has permission' state.

7.1.2.3 Test description

7.1.2.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)

-- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.2.3.2

Test procedure sequence

Table 7.1.2.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|------------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 4 | Check: Does the UE (MCPTT Client) send a GROUP CALL ACCEPT message? | --> | GROUP CALL ACCEPT | 1 | P |
| 5 | SS-UE1 (MCPTT client) sends a Floor Granted message notifying the recipients that it now has the floor | <-- | Floor Granted | - | - |
| 6 | Make the UE (MCPTT User) request the floor (NOTE 1), (NOTE 2) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 8 | The SS-UE1 (MCPTT client) sends a Floor Granted message granting the floor to the UE (MCPTT Client) | <-- | Floor Granted | - | - |
| 9 | The SS-UE1 (MCPTT client), having the same priority as the UE (MCPTT Client), sends a Floor Request message to the UE (MCPTT Client) with the F bit in the Floor Indication field set to '0' | <-- | Floor Request | - | - |
| 10 | Check: Does the UE (MCPTT Client) send a Floor Deny message to the sender of the Floor Request message with the Reject Cause field set to #1 (Another MCPTT client has permission)? | --> | Floor Deny | 2 | P |
| 11 | The SS-UE1 (MCPTT client), having the same priority as the UE (MCPTT Client), sends a Floor Request message to the UE (MCPTT Client) with the F bit in the Floor Indication field set to '1' | <-- | Floor Request | - | - |
| 12 | Check: Does the UE (MCPTT Client) add the requester to the queue and send a Floor Queue Position Info message to the sender of the Floor Request message? | --> | Floor Queue Position Info | 2 | P |
| 13 | The SS-UE1 (MCPTT client) sends a Floor Queue Position Request message to the UE (MCPTT Client) | <-- | Floor Queue Position Request | - | - |
| 14 | Check: Does the UE (MCPTT Client) respond to the Floor Queue Position Request message with a Floor Queue Position Info message? | --> | Floor Queue Position Info | 2 | P |
| 15 | Make the UE (MCPTT User) release the floor.(NOTE 1) | - | - | - | - |

| | | | | | |
|----|--|-----|------------------------------|---|---|
| 16 | Check: Does the UE (MCPTT Client) send a Floor Granted message to the floor participants indicating the queued participant now has the floor? (NOTE 4) | --> | Floor Granted | 2 | P |
| - | EXCEPTION: Step 17 is executed a total of 3 times | - | - | - | - |
| 17 | Check: Upon expiry of timer T205 (Floor Granted) and while counter C205 (Floor Granted) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Granted message send in step 16? | --> | Floor Granted | 2 | P |
| 18 | Void | - | - | - | - |
| 19 | The SS-UE1 (MCPTT client) sends a Floor Taken message to the UE (MCPTT Client) | <-- | Floor Taken | - | - |
| 20 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 21 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 22 | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 23 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 24 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 2 | P |
| 25 | The SS-UE1 (MCPTT client) responds with a Floor Queue Position Info message and places the UE (MCPTT Client) in the queue | <-- | Floor Queue Position Info | - | - |
| 26 | Make the UE (MCPTT User) request the queue position of the UE (MCPTT Client) (NOTE 1) | - | - | - | - |
| 27 | Check: Does the UE (MCPTT Client) send a Floor Queue Position Request message? | --> | Floor Queue Position Request | 2 | P |
| 28 | The SS-UE1 (MCPTT client) responds with a Floor Queue Position Info message | <-- | Floor Queue Position Info | - | - |
| 29 | The SS-UE1 (MCPTT client) sends a Floor Granted message to the UE (MCPTT Client) granting the floor to the UE (MCPTT Client) | <-- | Floor Granted | - | - |
| 30 | Check: Does the UE (MCPTT Client) notify the user (MCPTT User) of the floor grant? (NOTE 1) | - | - | 2 | P |
| 31 | Make the UE (MCPTT User) accept the floor grant (NOTE 1) | - | - | - | - |
| 32 | The SS-UE1 (MCPTT client), with a higher priority than the UE (MCPTT Client), sends a Floor Request message with preemption | <-- | Floor Request | - | - |
| 33 | Check: Does the UE (MCPTT Client) respond by sending a Floor Granted message? (NOTE 4) | --> | Floor Granted | 2 | P |
| - | EXCEPTION: Step 34 is executed a total of 3 times | - | - | - | - |
| 34 | Check: Upon expiry of timer T205 (Floor Granted) and while counter C205 (Floor Granted) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Granted message send in step 33? | --> | Floor Granted | 2 | P |
| 35 | Void | - | - | - | - |
| 36 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 37 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? (NOTE 5) | --> | Floor Request | 2 | P |

| | | | | | |
|----|--|-----|-------------------------------|---|---|
| - | EXCEPTION: Step 38 is executed a total of 2 times | - | - | - | - |
| 38 | Check: Upon expiry of timer T201 (Floor Request) and while counter C201 (Floor Request) is less than its maximum value, does the UE (MCPTT Client) retransmit the Floor Request message send in step 37? | --> | Floor Request | 2 | P |
| 39 | Check: Upon expiry of timer T201 (Floor Request) and with counter C201 (Floor Request) equal to its maximum value, does the UE (MCPTT Client) send a Floor Taken message? | --> | Floor Taken | 2 | P |
| 40 | Make the UE (MCPTT User) release the floor (NOTE 1) | - | - | - | - |
| 41 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 2 | P |
| 42 | The SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT to upgrade the call to an emergency call | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 43 | SS-UE1 (MCPTT client) sends a Floor Granted message notifying the recipients that it now has the floor | <-- | Floor Granted | - | - |
| 44 | Void | - | - | 3 | P |
| 45 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 46 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 3 | P |
| 47 | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 48 | SS-UE1 (MCPTT client) sends a Floor Release message | <-- | Floor Release | - | - |
| 49 | The SS-UE1 (MCPTT client) sends a GROUP CALL EMERGENCY END to downgrade the emergency call | <-- | GROUP CALL EMERGENCY END | - | - |
| 50 | Void | - | - | - | - |
| 51 | The SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT to upgrade the call to an imminent peril call | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 52 | SS-UE1 (MCPTT client) sends a Floor Granted message notifying the recipients that it now has the floor | <-- | Floor Granted | - | - |
| 53 | Void | - | - | - | - |
| 54 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 55 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 4 | P |
| 56 | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 57 | SS-UE1 (MCPTT client) sends a Floor Release message | <-- | Floor Release | - | - |
| 58 | The SS-UE1 (MCPTT client) sends a GROUP CALL IMMINENT PERIL END to downgrade the imminent peril call | <-- | GROUP CALL IMMINENT PERIL END | - | - |
| 59 | Void | - | - | 8 | P |
| 60 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.

NOTE 2: If the user does not request the floor before timer T203 (End of RTP media) expires, then the MCPTT Client will enter 'O: silence' state per 24.380 [10] and the remaining steps will not be valid. Timer T203 (End of RTP media)=5s as defined in TS 36.579-1 [2], Table 5.5.8.1-1 and is started upon the reception of the Floor Granted message in step 5. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified.

NOTE 3: If the MCPTT User does not release the floor before timer T207 (Stop talking) expires, then the MCPTT Client will enter the 'O: silence' state per TS 24.380 [10] and the remaining steps will not be valid. Timer T206 (Stop talking warning) is started upon the receiving of the Floor Granted message in step 8. Timer T207 (Stop talking) starts upon the expiration of Timer T206 (Stop talking warning). Timer T206 (Stop talking warning)=10s is set to TransmitTimeout=60s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1, minus TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. Timer T207 (Stop talking)=50s is set to TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified.

NOTE 4: Timer T205 (Floor Granted) and Counter C205 (Floor Granted) are started upon the sending of the Floor Granted message. Timer T205 (Floor Granted)=1s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. Counter C205 (Floor Granted) is set to 1 and the maximum value of C205 (Floor Granted)=4, as defined in TS 36.579-1 [2], Table 5.5.8.1-1.

NOTE 5: Timer T201 (Floor Request) and Counter C201 (Floor Request) are started upon the sending of the Floor Request message. Timer T201 (Floor Request)=1s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. Counter C201 (Floor Request) is set to 1 and the maximum value of Counter C201 (Floor Request)=3, as defined in TS 36.579-1 [2], Table 5.5.8.1-1.

7.1.2.3.3 Specific message contents

Table 7.1.2.3.3-1: GROUP CALL ANNOUNCEMENT (step 42, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000011" | Emergency group call | |

Table 7.1.2.3.3-2: GROUP CALL ANNOUNCEMENT (step 51, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent peril group call | |

Table 7.1.2.3.3-3: Floor Granted (step 5, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | "0" | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-4: Floor Granted (steps 8, 29, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-5: Floor Granted (steps 16, 17, 33, 34, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-6: Floor Granted (step 43, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| Floor priority | "0" | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0001010000000000" | bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-7: Floor Granted (step 52, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | 128 sec (an arbitrary value) | |
| Floor priority | "0" | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0000110000000000" | bit E=1 (Imminent Peril call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-8: Floor Request (steps 7, 21, 37, 38, 46, 55, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-9: Floor Request (step 9, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|----------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "100000000000000000" | bit A=1 (Normal call) bit F=0 (Queueing not supported) | |

Table 7.1.2.3.3-10: Floor Request (step 11, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|----------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "100001000000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-11: Floor Request (step 32, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|----------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Priority | "12" | Priority is higher than mcptt-client-A | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "100001000000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-12: Floor Deny (step 10, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|----------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reject Cause | | | |
| ..Reject Cause | any allowed value | | |
| Reject Phrase | not present or any allowed value | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-13: Floor Deny (step 22, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_A_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-14: Floor Deny (step 47, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_A_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0001010000000000" | bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-15: Floor Deny (step 56, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_A_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0000110000000000" | bit E=1 (Imminent Peril call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-16: Floor Queue Position Info (steps 12, 14, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.10-1 condition OFF-NETWORK | | | |
|--|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_A_ID | | |
| Queued User ID | | | |
| Queued User ID | Px_MCPTT_User_B_ID | | |
| Queue Info | | | |
| Queue Position Info | "1" | | |
| Queue Priority Level | any allowed value | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-17: Floor Queue Position Info (steps 25, 28, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.10-1 condition OFF-NETWORK | | | |
|--|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-18: Floor Queue Position Request (step 13, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.9-1 condition OFF-NETWORK | | | |
|---|--------------------|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |

Table 7.1.2.3.3-19: Floor Taken (step 19, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "1000010000000000" | bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-20: Floor Taken (step 39, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.7-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Granted Party's Identity | | | |
| Granted Party's Identity | Px_MCPTT_User_A_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "10000X0000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-21: Floor Release (step 41, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | "1000X000000000" | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.2.3.3-22: Floor Release (step 48, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0001010000000000" | bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.1.2.3.3-23: Floor Release (step 57, Table 7.1.2.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | "0000110000000000" | bit E=1 (Imminent Peril call) bit F=1 (Queueing supported) | |

7.1.3 Off-network / Group Call / Leave Group Call when GROUP CALL PROBE sent / Initiate Group Call for Released Call / Receive GROUP CALL ANNOUNCEMENT for Released call / No GROUP CALL ANNOUNCEMENT for Released Call / Receive Response to GROUP CALL PROBE

7.1.3.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate/cancel group calls in off-network environment, and the UE (MCPTT Client) is in an off-
network environment }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT pre-arranged group call and UE (MCPTT
Client) requests a pre-arranged group call by sending a GROUP CALL PROBE message and the MCPTT User
requests the release of the call before the expiration of the TFG3 (call probe retransmission)timer
}
  then { the UE (MCPTT Client) releases the call and enters the "S7: Waiting for call announcement
after call release" state and does not send a GROUP CALL PROBE at the expiry of the TFG3 (call probe
retransmission)timer }
}

```

(2)

```

with { UE (MCPTT Client) in the "S7: Waiting for call announcement after call release" state }

```

```

ensure that {
  when { the MCPTT User requests the establishment of an MCPTT pre-arranged group call }
  then { the UE (MCPTT Client) sends a GROUP CALL PROBE message and enters the "S2: waiting for
call announcement" state }
}

```

(3)

```

with { UE (MCPTT Client) in the "S2: waiting for call announcement" state }
ensure that {
  when { the UE (MCPTT Client) receives a GROUP CALL ANNOUNCEMENT message }
  then { the UE (MCPTT Client) enters the "S3: part of ongoing call" state as a terminating floor
participant and respects the floor control imposed by the floor control entity/arbitrator }
}

```

7.1.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.2.1, 10.2.2.4.5.5, 10.2.2.4.5.6, 10.2.2.4.5.7, 10.2.2.4.5.4, 10.2.2.4.5.8, 10.2.2.4.3.2, TS 24.380 clause 7.2.3.2.3. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.2.1]

When in the "S1: start-stop" state, upon an indication from an MCPTT user to initiate a group call for an MCPTT group ID, the MCPTT client:

- 1) shall store the MCPTT group ID as the MCPTT group ID of the call;
- 2) shall create a call type control state machine as described in subclause 10.2.3.2;
- 3) shall generate a GROUP CALL PROBE message as specified in subclause 15.1.2. In the GROUP CALL PROBE message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
- 4) shall send the GROUP CALL PROBE message as specified in subclause 10.2.1.1.1;
- 5) shall start timer TFG3 (call probe retransmission);
- 6) shall start timer TFG1 (wait for call announcement); and
- 7) shall enter the "S2: waiting for call announcement" state.

[TS 24.379, clause 10.2.2.4.5.5]

When in the "S2: waiting for call announcement" state, upon an indication from the MCPTT user to release the group call, the MCPTT client:

- 1) shall stop timer TFG3 (call probe retransmission); and
- 2) shall enter the "S7: Waiting for call announcement after call release" state.

[TS 24.379, clause 10.2.2.4.5.6]

When in the "S7: Waiting for call announcement after call release" state, upon an indication from the MCPTT user to initiate a group call for an MCPTT group ID matching the stored MCPTT group ID of the call, the MCPTT client:

- 1) shall stop timer TFG1 (wait for call announcement);
- 2) shall generate a GROUP CALL PROBE message as specified in subclause 15.1.2. In the GROUP CALL PROBE message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
- 3) shall send the GROUP CALL PROBE message as specified in subclause 10.2.1.1.1;

- 4) shall start timer TFG3 (call probe retransmission);
- 5) shall start timer TFG1 (wait for call announcement); and
- 6) shall enter the "S2: waiting for call announcement" state.

[TS 24.379, clause 10.2.2.4.5.7]

When in the "S7: Waiting for call announcement after call release" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE matching the stored MCPTT group ID of the call, the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 6) shall stop timer TFG1 (wait for call announcement);
- 7) shall start timer TFG5 (not present incoming call announcements); and
- 8) shall enter the "S6: ignoring incoming call announcements" state.

[TS 24.379, clause 10.2.2.4.5.4]

When in the "S6: ignoring incoming call announcements" state, upon expiration of timer TFG5 (not present incoming call announcements), the MCPTT client:

- 1) shall release the stored SDP body of the call;
- 2) shall release the stored call identifier of the call;
- 3) shall release the stored originating MCPTT user ID of the call;
- 4) shall release the stored refresh interval of the call;
- 5) shall release the stored MCPTT group ID of the call;
- 6) shall release the call start time of the call;
- 7) shall destroy the call type control state machine as specified in subclause 10.2.3.4.10 or 10.2.3.4.11; and
- 8) shall enter the "S1: start-stop" state.

[TS 24.379, clause 10.2.2.4.5.8]

When in the "S7: Waiting for call announcement after call release" state, upon expiration of timer TFG1 (wait for call announcement), the MCPTT client:

- 1) shall release the stored MCPTT group ID of the call;
- 2) shall destroy the call type control state machine as specified in subclause 10.2.3.4.11; and
- 3) shall enter the "S1: start-stop" state.

[TS 24.379, clause 10.2.2.4.3.2]

When in the "S2: waiting for call announcement" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE matching the stored MCPTT group ID of the call, the MCPTT client:

- 1) shall stop timer TFG3 (call probe retransmission);
- 2) shall stop timer TFG1 (wait for call announcement);
- 3) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 4) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 5) shall store the value of the originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the Originating MCPTT user ID of the call;
- 6) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 7) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 8) shall establish a media session based on the stored SDP body of the call;
- 9) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 10) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
- 11) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
- 12) shall enter the "S3: part of ongoing call" state.

[TS 24.380, clause 7.2.3.2.3]

When an MCPTT call is established the terminating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall start timer T230 (Inactivity); and
3. shall enter 'O: silence' state.

7.1.3.3 Test description

7.1.3.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)

-- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The

simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- TFG1 (wait for call announcement) set to 25 seconds (25,000 ms) ("~~x~~/OffNetwork/Timers/TFG1" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13]; related to the D2D Sidelink period)
- TFG3 (call probe retransmission) set to 15 seconds (15,000 ms) ("~~x~~/OffNetwork/Counters/TFG3" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
- TFG5 (not present incoming call announcement) set to 30 seconds ("~~x~~/OffNetwork/Timers/TFG5" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13].)
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.3.3.2

Test procedure sequence

Table 7.1.3.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | The UE (MCPTT client) sends a GROUP CALL PROBE message to determine the current call status of the group (NOTE 2) | --> | GROUP CALL PROBE | - | - |
| 4A | SS starts Timer=15s (TFG3 (call probe retransmission)) | - | - | - | - |
| 5 | Make the UE (MCPTT Client) release the off-network basic group call (NOTE 1), (NOTE 3) | - | - | - | - |
| 5A | Timer=15s expires | - | - | - | - |
| 6 | Check: Does the UE (MCPTT Client) in the next 5 seconds send a retransmission of the GROUP CALL PROBE sent in step 4? | --> | GROUP CALL PROBE | 1 | F |
| 6A | Wait 5 seconds GROUP CALL PROBE message | - | - | - | - |
| 7 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1), (NOTE 4) | - | - | - | - |
| 8 | Check: Does the UE (MCPTT client) send a GROUP CALL PROBE message to determine the current call status of the group? (NOTE 2) | --> | GROUP CALL PROBE | 2 | P |
| 9 | Make the UE (MCPTT Client) release the off-network basic group call (NOTE 1), (NOTE 3) | - | - | - | - |
| 10 | The SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT message to the UE (MCPTT Client) with the MCPTT group ID IE matching the stored MCPTT group ID of the released call | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 11 | Void | - | - | - | - |
| 12 | Void | - | - | - | - |
| 13 | Void | - | - | - | - |
| 14 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1) | - | - | - | - |

| | | | | | |
|-----|--|-----|-------------------------|---|---|
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 15 | The UE (MCPTT client) sends a GROUP CALL PROBE message to determine the current call status of the group (NOTE 2) | --> | GROUP CALL PROBE | - | - |
| 15A | SS starts Timer=25s (TFG1 (wait for call announcement)) | - | - | - | - |
| 16 | Make the UE (MCPTT Client) release the off-network basic group call (NOTE 1), (NOTE 3) | - | - | - | - |
| 16A | Timer=25s expires | - | - | - | - |
| 17 | Void | - | - | 4 | P |
| 18 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 19 | The UE (MCPTT client) sends a GROUP CALL PROBE message to determine the current call status of the group (NOTE 2) | --> | GROUP CALL PROBE | - | - |
| 20 | The SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT message to the UE (MCPTT Client) with the MCPTT group ID IE matching the stored MCPTT group ID of the released call (NOTE 5) | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 20A | Make the UE (MCPTT Client) request the floor (NOTE 1) | - | - | - | - |
| 21 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | - | - | 5 | P |
| 21A | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 22 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |

| |
|---|
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. |
| NOTE 2: Timer TFG3 (call probe retransmission)=15s as defined in the Pre-test conditions and TFG1 (wait for call announcement)=25s as defined in the Pre-test conditions are started upon the sending of the GROUP CALL PROBE message. |
| NOTE 3: If the MCPTT User does not release the call before timer TFG3 (call probe retransmission) expires, then the MCPTT Client will resend the GROUP CALL PROBE message per TS 24.379 [9] and the remaining steps will not be valid. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified. |
| NOTE 4: If the MCPTT User does not perform an action before timer TFG1 (wait for call announcement) expires, then the MCPTT Client will enter the "S1: start-stop" state per TS 24.379 [9] and the remaining steps will not be valid. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified. |
| NOTE 5: Timer TFG6 (max duration) and timer TFG2 (call announcement) are started upon the receiving of the GROUP CALL ANNOUNCEMENT message while in the "S2: waiting for call announcement" state. The value of TFG6 (max duration) is a variable equation as defined in TS 36.379 [2], clause 10.2.2.4.1.2. The value of TFG2 (call announcement) is a variable equation as defined in TS 36.379 [2], clause 10.2.2.4.1.1. |

7.1.3.3.3 Specific message contents

Table 7.1.3.3.3-1: GROUP CALL ANNOUNCEMENT (step 20, Table 7.1.3.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.2-1 | | | |
|---|--------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Probe response | present | GROUP CALL ANNOUNCEMENT is in response to a GROUP CALL PROBE | |

7.1.4 Off-network / Group Call / MCPTT User Acknowledgement Required / With Confirm Indication / MCPTT User Reject / MCPTT User Accept / Client Terminated (CT)

7.1.4.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to receive group calls in off-network environment, **and** the UE (MCPTT Client) is configured such that user acknowledgement is required upon a terminating call request reception, **and** the UE (MCPTT Client) is in an off-network environment }
ensure that {
 when { the UE (MCPTT Client) receives an off-network group call request via a GROUP CALL ANNOUNCEMENT message, **and** the MCPTT User accepts the call }
 then { the UE (MCPTT Client) accepts the call and sends a GROUP CALL ACCEPT message }
}

7.1.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.3.3, 10.2.2.4.3.7, 10.2.2.4.3.4. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.3.3]

When in the "S1: start-stop" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE not matching MCPTT group ID of the call stored for other state machines, the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;

- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL ANNOUNCEMENT message as the MCPTT group ID of the call;
- 6) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 7) shall create a call type control state machine as described in subclause 10.2.3.2;
- 8) if the terminating UE is configured that the terminating MCPTT user acknowledgement is required upon a terminating call request reception:
 - a) shall start timer TFG4 (waiting for the user);
 - b) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE, shall enter the "S5: pending user action with confirm indication" state; and
 - c) if the GROUP CALL ANNOUNCEMENT message does not contains the Confirm mode indication IE, shall enter the "S4: pending user action without confirm indication" state; and
- 9) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
 - a) shall establish a media session based on the stored SDP body of the call;
 - b) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
 - c) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE:
 - i) shall generate a GROUP CALL ACCEPT message as specified in subclause 15.1.4. In the GROUP CALL ACCEPT message, the MCPTT client:
 - A) shall set the Call identifier IE to the stored call identifier of the call;
 - B) shall set the Sending MCPTT user ID IE to own MCPTT user id;
 - C) shall set the Call type IE to the stored current call type associated with the call type control state machine; and
 - D) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
 - ii) shall send the GROUP CALL ACCEPT message as specified in subclause 10.2.1.1.1;
 - d) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
 - e) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
 - f) shall enter the "S3: part of ongoing call" state.

[TS 24.379, clause 10.2.2.4.3.7]

When in the "S5: pending user action with confirm indication" state or the "S4: pending user action without confirm indication" state, upon an indication from the MCPTT user to reject the incoming group call, the MCPTT client:

- 1) shall stop timer TFG4 (waiting for the user);
- 2) shall start timer TFG5 (not present incoming call announcements); and
- 3) shall enter the "S6: ignoring incoming call announcements" state.

[TS 24.379, clause 10.2.2.4.3.4]

When in the "S5: pending user action with confirm indication" state, upon indication from the MCPTT user to accept the incoming group call, the MCPTT client:

- 1) shall establish a media session based on the stored SDP body of the call;
- 2) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 3) shall generate a GROUP CALL ACCEPT message as specified in subclause 15.1.4. In the GROUP CALL ACCEPT message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;
 - b) shall set the Sending MCPTT user ID IE to own MCPTT user id;
 - c) shall set the Call type IE to the stored current call type associated with the call type control state machine;
and
 - d) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
- 4) shall send the GROUP CALL ACCEPT message as specified in subclause 10.2.1.1.1;
- 5) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
- 6) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
- 7) shall enter the "S3: part of ongoing call" state.

7.1.4.3 Test description

7.1.4.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.

- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- UE (MCPTT Client) is configured such that user acknowledgement is required upon a terminating call request reception
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.4.3.2

Test procedure sequence

Table 7.1.4.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT (NOTE 3) | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 4 | Void | - | - | - | - |
| 5 | While the UE (MCPTT Client) is in the "S5: pending user action with confirm indication" state, make the UE (MCPTT Client) reject the call request (NOTE 1), (NOTE 2) | - | - | - | - |
| 6 | Void | - | - | - | - |
| 7 | Void | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 8 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT (NOTE 3) | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 9 | Void | - | - | - | - |
| 10 | While the UE (MCPTT Client) is in the "S5: pending user action with confirm indication" state, make the UE (MCPTT Client) accept the call request (NOTE 1), (NOTE 2) | - | - | - | - |
| 11 | Check: Does the UE (MCPTT Client) send a GROUP CALL ACEEPT message? | --> | GROUP CALL ACCEPT | 1 | P |
| 12 | Void | - | - | - | - |
| 13 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: If the MCPTT User does not act before the expiration of timer TFG4 (waiting for the user), then the MCPTT Client will enter the "S6: ignoring incoming call announcements" state and the remaining steps will not be valid. Timer TFG4 (waiting for the user)=20s as defined in TS 36.579-1 [2], Table 5.5.8.1-1 and is started upon the receiving of the GROUP CALL ANNOUNCEMENT message. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified. | | | | | |
| NOTE 3: The UE (MCPTT Client) enters the "S5: pending user action with confirm indication" state | | | | | |

7.1.4.3.3 Specific message contents

None

7.1.5 Off-network / Group Call / MCPTT User Acknowledgement Required / Without Confirm Indication / MCPTT User Reject / MCPTT User Accept / Client Terminated (CT)

7.1.5.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to receive group calls in off-network environment, **and** the UE (MCPTT Client) is configured such that user acknowledgement is required upon a terminating call request reception, **and** the UE (MCPTT Client) is in an off-network environment **and** the UE (MCPTT Client) receives an off-network group call request via a GROUP CALL ANNOUNCEMENT message that does not contains the Confirm mode indication IE, **and** the MCPTT User accepts the call }

ensure that {

when { the MCPTT User requests the floor }

then { the UE (MCPTT Client) sends a Floor Request message to the floor participants and respects the floor control imposed by the floor control entity/arbitrator }

}

7.1.5.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.3.3, 10.2.2.4.3.7, 10.2.2.4.3.5. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.3.3]

When in the "S1: start-stop" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE not matching MCPTT group ID of the call stored for other state machines, the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL ANNOUNCEMENT message as the MCPTT group ID of the call;
- 6) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 7) shall create a call type control state machine as described in subclause 10.2.3.2;
- 8) if the terminating UE is configured that the terminating MCPTT user acknowledgement is required upon a terminating call request reception:
 - a) shall start timer TFG4 (waiting for the user);
 - b) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE, shall enter the "S5: pending user action with confirm indication" state; and
 - c) if the GROUP CALL ANNOUNCEMENT message does not contains the Confirm mode indication IE, shall enter the "S4: pending user action without confirm indication" state; and

- 9) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
- a) shall establish a media session based on the stored SDP body of the call;
 - b) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
 - c) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE:
 - i) shall generate a GROUP CALL ACCEPT message as specified in subclause 15.1.4. In the GROUP CALL ACCEPT message, the MCPTT client:
 - A) shall set the Call identifier IE to the stored call identifier of the call;
 - B) shall set the Sending MCPTT user ID IE to own MCPTT user id;
 - C) shall set the Call type IE to the stored current call type associated with the call type control state machine; and
 - D) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
 - ii) shall send the GROUP CALL ACCEPT message as specified in subclause 10.2.1.1.1;
 - d) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
 - e) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
 - f) shall enter the "S3: part of ongoing call" state.

[TS 24.379, clause 10.2.2.4.3.7]

When in the "S5: pending user action with confirm indication" state or the "S4: pending user action without confirm indication" state, upon an indication from the MCPTT user to reject the incoming group call, the MCPTT client:

- 1) shall stop timer TFG4 (waiting for the user);
- 2) shall start timer TFG5 (not present incoming call announcements); and
- 3) shall enter the "S6: ignoring incoming call announcements" state.

[TS 24.379, clause 10.2.2.4.3.5]

When in the "S4: pending user action without confirm indication" state, upon an indication from the MCPTT user to accept the incoming group call, the MCPTT client:

- 1) shall establish a media session based on the stored SDP body of the call;
- 2) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 3) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
- 4) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
- 5) shall enter the "S3: part of ongoing call" state.

7.1.5.3 Test description

7.1.5.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- UE (MCPTT Client) is configured such that user acknowledgement is required upon a terminating call request reception
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.5.3.2

Test procedure sequence

Table 7.1.5.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT (NOTE 2) | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 4 | Void | - | - | - | - |
| 5 | While the UE (MCPTT Client) is in the "S4: pending user action without confirm indication" state, make the UE (MCPTT Client) reject the call request (NOTE 1), (NOTE 3) | - | - | - | - |
| 6 | Void | - | - | - | - |
| 7 | Void | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 8 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT (NOTE 2) | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 9 | Void | - | - | - | - |
| 10 | While the UE (MCPTT Client) is in the "S4: pending user action without confirm indication" state, make the UE (MCPTT Client) accept the call request (NOTE 1), (NOTE 3) | - | - | - | - |
| 10A | Make the UE (MCPTT Client) request the floor (NOTE 1) | --> | Floor Request | - | - |
| 11 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | - | - | 1 | P |
| 11A | The SS-UE1 (MCPTT client) responds with a Floor Deny message | <-- | Floor Deny | - | - |
| 12 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |

NOTE 1: This is expected to be done via a suitable implementation dependent MMI.
 NOTE 2: The UE (MCPTT Client) enters the "S4: pending user action without confirm indication" state
 NOTE 3: If the MCPTT User does not act before the expiration of timer TFG4 (waiting for the user), then the MCPTT Client will enter the "S6: ignoring incoming call announcements" state and the remaining steps will not be valid. Timer TFG4 (waiting for the user)=20s as defined in TS 36.579-1 [2], Table 5.5.8.1-1 and is started upon the receiving of the GROUP CALL ANNOUNCEMENT message. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified.

7.1.5.3.3 Specific message contents

Table 7.1.5.3.3-1: GROUP CALL ANNOUNCEMENT (steps 3, 8, Table 7.1.5.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.2-1 | | | |
|---|--------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Confirm mode indication | Not present | The terminating MCPTT client is expected to confirm call acceptance | |

7.1.6 Off-network / Group Call / Merge Two Calls

7.1.6.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) having established an off-network MCPTT Pre-arranged Group Call }
ensure that {
  when { the UE (MCPTT Client) receives a GROUP CALL ANNOUNCEMENT message with the same call type as
the current call, the same start time as the current call, but with a lower Call identifier IE }
  then { UE (MCPTT Client) merges the two calls and restarts floor control as a terminating floor
participant and respects the floor control imposed by the floor control entity/arbitrator }
}
```

7.1.6.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clause 10.2.2.4.6.1, TS 24.380 clause 7.2.3.2.3. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.6.1]

When in the "S3: part of ongoing call" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE matching the stored MCPTT group ID of the call and:

- 1) the Originating MCPTT user ID IE is different from the stored originating MCPTT user ID of the call; or
- 2) the Call identifier IE is different from the stored call identifier of the call;

then:

- 1) if the stored current call type associated with the call type control state machine is "BASIC GROUP CALL" and the value of the Call type IE of GROUP CALL ANNOUNCEMENT message is either "IMMINENT PERIL GROUP CALL" or "EMERGENCY GROUP CALL";
- 2) if the stored current call type associated with the call type control state machine is "IMMINENT PERIL GROUP CALL" and the value of the Call type IE of GROUP CALL ANNOUNCEMENT message is "EMERGENCY GROUP CALL";
- 3) if the stored current call type associated with the call type control state machine being equal to the Call type IE of the GROUP CALL ANNOUNCEMENT message and the Call start time IE of the GROUP CALL ANNOUNCEMENT message being lower than the stored call start time of the call; or

- 4) if the stored current call type associated with the call type control state machine being equal to the Call type IE of the GROUP CALL ANNOUNCEMENT message and the Call start time IE of the GROUP CALL ANNOUNCEMENT message being equal to the stored call start time of the call and the Call identifier IE of the GROUP CALL ANNOUNCEMENT message being lower than the stored call identifier of the call;

the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 6) shall adjust the media session based on the stored SDP body of the call and restart floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 7) shall stop timer TFG6 (max duration);
- 8) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
- 9) shall stop timer TFG2 (call announcement); and
- 10) shall start timer TFG2 (call announcement) with value according to rules and procedures as specified in subclause 10.2.2.4.1.1.1; and
- 11) shall remain in the "S3: part of ongoing call" state.

[TS 24.380, clause 7.2.3.2.3]

When an MCPTT call is established the terminating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall start timer T230 (Inactivity); and
3. shall enter 'O: silence' state.

7.1.6.3 Test description

7.1.6.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.6.3.2

Test procedure sequence

Table 7.1.6.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network basic group call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a GROUP CALL PROBE message to determine the current call status of the group? (NOTE 2) | --> | GROUP CALL PROBE | - | - |
| - | EXCEPTION: Step 5 is executed a total of 3 times | - | - | - | - |
| 5 | At the expiration of TFG3 (call probe retransmission), the UE (MCPTT Client) sends a retransmission of the GROUP CALL PROBE sent in step 4 | --> | GROUP CALL PROBE | - | - |
| 6 | At the expiration of TFG1 (wait for call announcement), and after receiving no response to the GROUP CALL PROBE, the UE (MCPTT Client) sends a GROUP CALL ANNOUNCEMENT message to initiate an off-network basic group call | --> | GROUP CALL ANNOUNCEMENT | - | - |
| 7 | The SS-UE1 (MCPTT client) sends a GROUP CALL ACCEPT accepting the GROUP CALL ANNOUNCEMENT | <-- | GROUP CALL ACCEPT | - | - |
| 8 | The UE (MCPTT Client) sends a Floor Granted message towards the other floor participants | --> | Floor Granted | - | - |
| 9 | Void | - | - | - | - |
| 10 | The SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT message with the same call type as the current call, the same start time as the current call, but with a lower Call identifier IE | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 11 | The SS-UE1 (MCPTT client) sends a Floor Granted message to the UE (MCPTT Client) (NOTE 3) | <-- | Floor Granted | - | - |
| 12 | Void | - | - | - | - |
| 13 | Make the UE (MCPTT User) request the floor (NOTE 4) | - | - | - | - |
| 14 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | --> | Floor Request | 1 | P |
| 15 | The SS-UE1 (MCPTT client) sends a Floor Granted message granting the floor to the UE (MCPTT Client) | <-- | Floor Granted | - | - |
| 16 | Make the UE (MCPTT User) release the floor (NOTE 1), (NOTE5) | - | - | - | - |

| | | | | | |
|---|---|-----|---------------|---|---|
| 17 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 1 | P |
| 18 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |
| <p>NOTE 1: This is expected to be done via a suitable implementation dependent MMI.</p> <p>NOTE 2: Timer TFG3 (call probe retransmission)=40ms as defined in TS 36.579-1 [2], Table 5.5.8.1-1 and TFG1 (wait for call announcement)=150ms as defined in TS 36.579-1 [2], Table 5.5.8.1-1 are started upon the sending of the GROUP CALL PROBE message</p> <p>NOTE 3: The UE (MCPTT Client) merges the 2 calls and relinquishes floor control to the sender of the GROUP CALL ANNOUNCEMENT in step 10</p> <p>NOTE 4: If the MCPTT User does not perform an action before timer T230 (Inactivity) expires, then the MCPTT Client will enter the 'O: 'Start-stop' state per 24.380 [10] and the remaining steps will not be valid. Timer T230 (Inactivity) is started upon the receiving of the Floor Granted message. Timer T230 (Inactivity)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified.</p> <p>NOTE 5: If the MCPTT User does not release the floor before timer T207 (Stop talking) expires, then the MCPTT Client will enter the 'O: silence' state per TS 24.380 [10] and the remaining steps will not be valid. Timer T206 (Stop talking warning) is started upon the receiving of the Floor Granted message. Timer T207 (Stop talking) starts upon the expiration of Timer T206 (Stop talking warning). Timer T206 (Stop talking warning)=10s is set to TransmitTimeout=60s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1, minus TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. Timer T207 (Stop talking)=50s is set to TransmissionWarning=50s, as defined in TS 36.579-1 [2], Table 5.5.8.4-1. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified.</p> | | | | | |

7.1.6.3.3 Specific message contents

Table 7.1.6.3.3-1: GROUP CALL ANNOUNCEMENT (step 10, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call identifier | A value less than the Call identifier used in the GROUP CALL ANNOUNCEMENT sent in step 5 | | |
| Call start time | The same Call start time used in the GROUP CALL ANNOUNCEMENT sent in step 5 | | |

Table 7.1.6.3.3-2: Floor Granted (step 8, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | '10000X0000000000' | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.6.3.3-3: Floor Granted (step 10, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | "0" | | |
| User ID | | | |
| User ID | Px_MCPTT_User_B_ID | | |
| Floor Indicator | | | |
| Floor Indicator | '1000010000000000' | bit A=1 (Normal call) bit F=1 (Queueing supported) any value | |

Table 7.1.6.3.3-4: Floor Granted (step 14, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | "0" | | |
| Floor Indicator | | | |
| Floor Indicator | '1000010000000000' | bit A=1 (Normal call) bit F=1 (Queueing supported) any value | |

Table 7.1.6.3.3-5: Floor Request (step 13, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000X0000000000' | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

Table 7.1.6.3.3-6: Floor Release (step 16, Table 7.1.6.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000X0000000000' | bit A=1 (Normal call) bit F=X (Queueing supported) any value | |

7.1.7 Off-network / Group Call / Emergency Call / Imminent Peril Call / Client Originated (CO)

7.1.7.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate/cancel emergency group calls in off-network environment, and the UE (MCPTT Client) is in an
off-network environment }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT emergency group call }
  then { UE (MCPTT Client) requests an MCPTT emergency group call by sending a GROUP CALL
ANNOUNCEMENT message, and respects the floor control imposed by the floor control entity/arbitrator
}
}
```

(2)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate/cancel imminent peril group calls in off-network environment, and the UE (MCPTT Client) is
in an off-network environment }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT imminent peril group call }
  then { UE (MCPTT Client) requests an MCPTT imminent peril group call by sending a GROUP CALL
ANNOUNCEMENT message, and respects the floor control imposed by the floor control entity/arbitrator
}
}
```

7.1.7.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.2.1, 10.2.3.4.2, 10.2.3.4.6, 10.2.2.4.3.1, TS 24.380 clause 7.2.3.2.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.2.1]

When in the "S1: start-stop" state, upon an indication from an MCPTT user to initiate a group call for an MCPTT group ID, the MCPTT client:

- 1) shall store the MCPTT group ID as the MCPTT group ID of the call;
- 2) shall create a call type control state machine as described in subclause 10.2.3.2;
- 3) shall generate a GROUP CALL PROBE message as specified in subclause 15.1.2. In the GROUP CALL PROBE message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
- 4) shall send the GROUP CALL PROBE message as specified in subclause 10.2.1.1.1;
- 5) shall start timer TFG3 (call probe retransmission);
- 6) shall start timer TFG1 (wait for call announcement); and
- 7) shall enter the "S2: waiting for call announcement" state.

[TS 24.379, clause 10.2.3.4.2]

When in the "T0: waiting for the call to establish " state, upon an indication from an MCPTT user to initiate a group call probe for an MCPTT group, the MCPTT client:

- 1) if the stored emergency state associated with emergency alert state machine described in 12.2.2.2 is set to "true" and the value of "<x>/<x>/Common/AllowedEmergencyCall" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] is set to "true":
 - a) shall set the stored current call type to "EMERGENCY GROUP CALL"; and

- b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
- 2) if the stored emergency state associated with emergency alert state machine described in 12.2.2.2 is set to "false", and:
 - a) if the user initiates an MCPTT emergency call and the values of "`/<x>/<x>/Common/MCPTTGroupCall/EmergencyCall/Enabled`" leaf node present in the user profile and "`/<x>/<x>/Common/AllowedEmergencyCall`" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] are set to "true":
 - i) shall set the stored current call type to "EMERGENCY GROUP CALL"; and
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - b) if the user initiates an MCPTT imminent peril group call and the values of "`/<x>/<x>/Common/MCPTTGroupCall/ImminentPerilCall/Authorised`" leaf node present in the user profile and "`/<x>/<x>/Common/AllowedImminentPerilCall`" leaf node present in group configuration as specified in 3GPP TS 24.383 [45] are set to "true":
 - i) shall set the stored current call type to "IMMINENT PERIL GROUP CALL"; and
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45]; and
 - c) if the user initiates an MCPTT group call which is not an MCPTT emergency call and which is not an MCPTT imminent peril group call:
 - i) shall set the stored current call type to "BASIC GROUP CALL"; and
 - ii) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45];
- 3) shall set the stored last call type change time to current UTC time;
- 4) shall set the last user to change call type to own MCPTT user ID; and
- 5) shall remain in "T0: waiting for the call to establish" state.

[TS 24.379, clause 10.2.3.4.6]

When in state "T0: waiting for the call to establish", if:

- a) the MCPTT user accepts the call when MCPTT user acknowledgement is required; or
- b) the MCPTT client sends a GROUP CALL ANNOUNCEMENT message on expiry of timer TFG1 (wait for call announcement) associated with the basic call control state machine;

the MCPTT client:

- 1) if the stored current call type is set to "EMERGENCY GROUP CALL"
 - a) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and
 - b) shall enter "T1: in-progress emergency group call" state;
- 2) if the stored current call type is set to "IMMINENT PERIL GROUP CALL"
 - a) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - b) shall enter "T3: in-progress imminent peril group call" state; or
- 3) if the stored current call type is set to "BASIC GROUP CALL"

- a) shall enter "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.2.4.3.1]

When in the "S2: waiting for call announcement" state, upon expiry of timer TFG1 (wait for call announcement), the MCPTT client:

- 1) shall stop timer TFG3 (call probe retransmission), if running;
- 2) shall generate an SDP body as specified in subclause 10.2.1.1.2 and store it as the SDP body of the call;
- 3) shall generate a random number with uniform distribution between 0 and 65535 and store it as the call identifier of the call;
- 4) shall select refresh interval value and store it as the refresh interval of the call;
- 5) shall store own MCPTT user ID as the originating MCPTT user ID of the call;
- 6) shall store the current UTC time as the call start time of the call;
- 7) shall generate a GROUP CALL ANNOUNCEMENT message as specified in subclause 15.1.3. In the GROUP CALL ANNOUNCEMENT message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;
 - b) shall set the Call type IE to the stored current call type associated with the call type control state machine;
 - c) shall set the Refresh interval IE to the stored refresh interval of the call;
 - d) shall set the SDP IE to the stored SDP body of the call;
 - e) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call;
 - f) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
 - g) shall set the Call start time IE to the stored call start time of the call;
 - h) shall set the Last call type change time IE to the stored last call type change time of the call associated with call type control state machine;
 - i) shall set the Last user to change call type IE to last user to change call type associated with call type control state machine; and
 - j) may include the Confirm mode indication IE;
- 8) shall send the GROUP CALL ANNOUNCEMENT message as specified in subclause 10.2.1.1.1;
- 9) shall establish a media session based on the stored SDP body of the call;
- 10) shall start floor control as originating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 11) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
- 12) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
- 13) shall enter the "S3: part of ongoing call" state.

NOTE: In this release of the present document, the refresh interval of the call is fixed to 10 seconds.

[TS 24.380, clause 7.2.3.2.2]

When an MCPTT call is established with session announcement including an explicit floor request, the originating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall send Floor Granted message towards other floor participants. The Floor Granted message:

- a. shall include the granted priority in the Floor priority field;
 - b. shall include the MCPTT user's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
3. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and
 4. shall enter 'O: has permission' state.

7.1.7.3 Test description

7.1.7.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble

- The UE is in state 'switched-off'.

7.1.7.3.2

Test procedure sequence

Table 7.1.7.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network emergency group call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | The UE (MCPTT client) sends a GROUP CALL PROBE message to determine the current call status of the group | --> | GROUP CALL PROBE | - | - |
| - | EXCEPTION: Step 5 is executed a total of 3 times | - | - | - | - |
| 5 | At the expiration of TFG3 (call probe retransmission), the UE (MCPTT Client) send a retransmission of the GROUP CALL PROBE sent in step 4 | --> | GROUP CALL PROBE | - | - |
| 6 | Check: At the expiration of TFG1 (wait for call announcement), and after receiving no response to the GROUP CALL PROBE, does the UE (MCPTT Client) send a GROUP CALL ANNOUNCEMENT message to initiate an off-network emergency group call? | --> | GROUP CALL ANNOUNCEMENT | 1 | P |
| 7 | The SS-UE1 (MCPTT client) sends a GROUP CALL ACCEPT accepting the GROUP CALL ANNOUNCEMENT | <-- | GROUP CALL ACCEPT | - | - |
| 8 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 1 | P |
| 9 | Make the UE (MCPTT User) release the floor (NOTE 1), (NOTE 2) | - | - | - | - |
| 10 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 1 | P |
| 11 | Make the UE (MCPTT Client) release the emergency group call (NOTE 1) | - | - | - | - |
| 12 | Void | - | - | - | - |
| 13 | Void | - | - | - | - |
| 14 | Make the UE (MCPTT Client) initiate an off-network imminent peril group call (NOTE 1) | - | - | - | - |

| | | | | | |
|--|--|-----|-------------------------|---|---|
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 15 | Check: Does the UE (MCPTT client) send a GROUP CALL PROBE message to determine the current call status of the group? | --> | GROUP CALL PROBE | - | - |
| - | EXCEPTION: Step 16 is executed a total of 3 times | - | - | - | - |
| 16 | Check: At the expiration of TFG3 (call probe retransmission), does the UE (MCPTT Client) send a retransmission of the GROUP CALL PROBE sent in step 15? | --> | GROUP CALL PROBE | - | - |
| 17 | Check: At the expiration of TFG1 (wait for call announcement), and after receiving no response to the GROUP CALL PROBE, does the UE (MCPTT Client) send a GROUP CALL ANNOUNCEMENT message to initiate an off-network imminent peril group call? | --> | GROUP CALL ANNOUNCEMENT | 2 | P |
| 18 | The SS-UE1 (MCPTT client) sends a GROUP CALL ACCEPT accepting the GROUP CALL ANNOUNCEMENT | <-- | GROUP CALL ACCEPT | - | - |
| 19 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 2 | P |
| 20 | Make the UE (MCPTT User) release the floor (NOTE 1), (NOTE 2) | - | - | - | - |
| 21 | Check: Does the UE (MCPTT Client) send a Floor Release message to the other floor participants? | --> | Floor Release | 2 | P |
| 22 | Make the UE (MCPTT Client) release the imminent peril group call (NOTE 1) | - | - | - | - |
| <p>NOTE 1: This is expected to be done via a suitable implementation dependent MMI.</p> <p>NOTE 2: If the MCPTT User does not perform an action before timer T207 (Stop talking) expires, then the MCPTT Client will enter the 'O: 'Silence' state per 24.380 [10] and the remaining steps will not be valid. Timer T207 (Stop talking) is started upon the expiration of time T206 (Stop talking warning), which is started at the sending of the Floor Granted message. T207 (Stop talking)=3s, as defined in TS 24.380 [10], Table 11.1.2-1. And T206 (Stop talking warning)=27s, as defined in TS 24.380 [10], Table 11.1.2-1. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified.</p> | | | | | |

7.1.7.3.3 Specific message contents

Table 7.1.7.3.3-1: GROUP CALL ANNOUNCEMENT (step 6, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000011" | Emergency Group Call | |

Table 7.1.7.3.3-2: GROUP CALL ANNOUNCEMENT (step 17, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent Peril Group Call | |

Table 7.1.7.3.3-3: GROUP CALL ACCEPT (step 7, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.3.2-1 | | | |
|---|--------------|----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000011" | Emergency Group Call | |

Table 7.1.7.3.3-4: GROUP CALL ACCEPT (step 18, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.3.2-1 | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent Peril Group Call | |

Table 7.1.7.3.3-5: Floor Granted (step 8, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor Indicator | | | |
| Floor Indicator | '00010X0000000000' | bit D=1 (Emergency call) bit F=X (Queueing supported) any value | |

Table 7.1.7.3.3-6: Floor Granted (step 19, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor Indicator | | | |
| Floor Indicator | '00001X0000000000' | bit E=1 (Imminent peril call) bit F=X (Queueing supported) any value | |

Table 7.1.7.3.3-7: Floor Release (step 10, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010X0000000000' | bit D=1 (Emergency call) bit F=X (Queueing supported) any value | |

Table 7.1.7.3.3-8: Floor Release (step 21, Table 7.1.7.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00001X0000000000' | bit E=1 (Imminent peril call) bit F=X (Queueing supported) any value | |

7.1.8 Off-network / Group Call / Emergency Call / Imminent Peril Call / Client Terminated (CT)

7.1.8.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
receive emergency group calls in off-network environment, and the UE (MCPTT Client) is in an off-
network environment }
ensure that {
  when { the UE (MCPTT Client) receives GROUP CALL ANNOUNCEMENT to initiate an MCPTT emergency group
call }
  then { UE (MCPTT Client) responds by sending a GROUP CALL ACCEPT message, and respects the floor
control imposed by the floor control entity/arbitrator }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
receive imminent peril group calls in off-network environment, and the UE (MCPTT Client) is in an
off-network environment }
ensure that {
  when { the UE (MCPTT Client) receives GROUP CALL ANNOUNCEMENT to initiate an MCPTT imminent peril
group call }
  then { UE (MCPTT Client) responds by sending a GROUP CALL ACCEPT message, and respects the floor
control imposed by the floor control entity/arbitrator }
}
```

7.1.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.2.2.4.3.3, 10.2.3.4.5, 10.2.3.4.6. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.2.2.4.3.3]

When in the "S1: start-stop" state, upon receiving a GROUP CALL ANNOUNCEMENT message with the MCPTT group ID IE not matching MCPTT group ID of the call stored for other state machines, the MCPTT client:

- 1) shall store the value of the SDP IE of the GROUP CALL ANNOUNCEMENT message as the SDP body of the call;
- 2) shall store the value of the Call identifier IE of the GROUP CALL ANNOUNCEMENT message as the call identifier of the call;
- 3) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL ANNOUNCEMENT message as the originating MCPTT user ID of the call;
- 4) shall store the value of the Refresh interval IE of the GROUP CALL ANNOUNCEMENT message as the refresh interval of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL ANNOUNCEMENT message as the MCPTT group ID of the call;

- 6) shall store the value of the Call start time IE of the GROUP CALL ANNOUNCEMENT message as the call start time of the call;
- 7) shall create a call type control state machine as described in subclause 10.2.3.2;
- 8) if the terminating UE is configured that the terminating MCPTT user acknowledgement is required upon a terminating call request reception:
 - a) shall start timer TFG4 (waiting for the user);
 - b) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE, shall enter the "S5: pending user action with confirm indication" state; and
 - c) if the GROUP CALL ANNOUNCEMENT message does not contains the Confirm mode indication IE, shall enter the "S4: pending user action without confirm indication" state; and
- 9) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
 - a) shall establish a media session based on the stored SDP body of the call;
 - b) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
 - c) if the GROUP CALL ANNOUNCEMENT message contains the Confirm mode indication IE:
 - i) shall generate a GROUP CALL ACCEPT message as specified in subclause 15.1.4. In the GROUP CALL ACCEPT message, the MCPTT client:
 - A) shall set the Call identifier IE to the stored call identifier of the call;
 - B) shall set the Sending MCPTT user ID IE to own MCPTT user id;
 - C) shall set the Call type IE to the stored current call type associated with the call type control state machine; and
 - D) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
 - ii) shall send the GROUP CALL ACCEPT message as specified in subclause 10.2.1.1.1;
 - d) shall start timer TFG6 (max duration) with value as specified in subclause 10.2.2.4.1.2;
 - e) shall start timer TFG2 (call announcement) with value as specified in subclause 10.2.2.4.1.1.1; and
 - f) shall enter the "S3: part of ongoing call" state.

[TS 24.379, clause 10.2.3.4.5]

When in the "T0: waiting for the call to establish" state, upon receipt of a GROUP CALL ANNOUNCEMENT message by an idle MCPTT client when MCPTT user acknowledgement is not required, the MCPTT client:

- 1) shall set the stored last call type change time to the Last call type change time IE of the GROUP CALL ANNOUNCEMENT message;
- 2) shall set the last user to change call type to the Last user to change call type IE of the GROUP CALL ANNOUNCEMENT message;
- 3) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "EMERGENCY GROUP CALL":
 - a) shall set the stored current call type to "EMERGENCY GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network emergency group call as described in 3GPP TS 24.383 [45];
 - c) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and

- d) shall enter "T1: in-progress emergency group call" state;
- 4) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "IMMINENT PERIL GROUP CALL":
 - a) shall set the stored current call type to "IMMINENT PERIL GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network imminent peril group call as described in 3GPP TS 24.383 [45];
 - c) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - d) shall enter "T3: in-progress imminent peril group call" state; and
- 5) if the Call type IE of the received GROUP CALL ANNOUNCEMENT message is set to "BASIC GROUP CALL":
 - a) shall set the stored current call type to "BASIC GROUP CALL";
 - b) shall set the stored current ProSe per-packet priority to value corresponding to MCPTT off-network basic group call as described in 3GPP TS 24.383 [45]; and
 - c) shall enter "T2: in-progress basic group call" state.

[TS 24.379, clause 10.2.3.4.6]

When in state "T0: waiting for the call to establish", if:

- a) the MCPTT user accepts the call when MCPTT user acknowledgement is required; or
- b) the MCPTT client sends a GROUP CALL ANNOUNCEMENT message on expiry of timer TFG1 (wait for call announcement) associated with the basic call control state machine;

the MCPTT client:

- 1) if the stored current call type is set to "EMERGENCY GROUP CALL"
 - a) shall start timer TFG13 (implicit downgrade emergency) with value as specified in subclause 10.2.3.4.1.1; and
 - b) shall enter "T1: in-progress emergency group call" state;
- 2) if the stored current call type is set to "IMMINENT PERIL GROUP CALL"
 - a) shall start timer TFG14 (implicit downgrade imminent peril) with value as specified in subclause 10.2.3.4.1.2; and
 - b) shall enter "T3: in-progress imminent peril group call" state; or
- 3) if the stored current call type is set to "BASIC GROUP CALL"
 - a) shall enter "T2: in-progress basic group call" state.

7.1.8.3 Test description

7.1.8.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
 - UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception
 - TFG1 (wait for call announcement) set to 150 ms (default value) ("`<x>/OffNetwork/Counters/TFG1`" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
 - TFG3 (call probe retransmission) set to 40 ms (default value) ("`<x>/OffNetwork/Counters/TFG3`" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.8.3.2

Test procedure sequence

Table 7.1.8.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|-------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT for the initiation of an emergency group call | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 4 | Check: Does the UE (MCPTT Client) send a GROUP CALL ACEEPT message? (NOTE 2) | --> | GROUP CALL ACCEPT | 1 | P |
| 5 | Void | - | - | 1 | P |
| 6 | SS-UE1 (MCPTT client) sends a Floor Granted message | <-- | Floor Granted | - | - |
| 7 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |
| 8 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | ---> | Floor Request | 1 | P |
| 9 | SS-UE1 (MCPTT client) sends a Floor Deny message | <-- | Floor Deny | - | - |
| 10 | SS-UE1 (MCPTT client) sends a Floor Release message | <-- | Floor Release | - | - |
| 11 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |
| 12 | Void | - | - | - | - |
| 13 | Void | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 14 | SS-UE1 (MCPTT client) sends a GROUP CALL ANNOUNCEMENT for the initiation of an imminent peril group call | <-- | GROUP CALL ANNOUNCEMENT | - | - |
| 15 | Check: Does the UE (MCPTT Client) send a GROUP CALL ACEEPT message? (NOTE 2) | --> | GROUP CALL ACCEPT | 2 | P |
| 16 | Void | - | - | 2 | P |
| 17 | SS-UE1 (MCPTT client) sends a Floor Granted message | <-- | Floor Granted | - | - |
| 18 | Make the UE (MCPTT User) request the floor (NOTE 1) | - | - | - | - |

| | | | | | |
|--|---|------|---------------|---|---|
| 19 | Check: Does the UE (MCPTT Client) send a Floor Request message to the floor participants? | ---> | Floor Request | 2 | P |
| 20 | SS-UE1 (MCPTT client) sends a Floor Deny message | <-- | Floor Deny | - | - |
| 21 | SS-UE1 (MCPTT client) sends a Floor Release message | <-- | Floor Release | - | - |
| 22 | Make the UE (MCPTT Client) release the group call (NOTE 1) | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: The UE (MCPTT Client) enters the "S3: part of ongoing call" state as a terminating floor participant | | | | | |

7.1.8.3.3 Specific message contents

Table 7.1.8.3.3-1: GROUP CALL ANNOUNCEMENT (step 3, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|-----------------------------------|-----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "0000011" | Emergency Group Call | |
| Originating MCPTT user ID | "sip:mcptt-client-B@mcptt-op.gov" | pre-set MCPTT user ID | |

Table 7.1.8.3.3-2: GROUP CALL ANNOUNCEMENT (step 14, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.2.1-1 | | | |
|---|-----------------------------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent Peril Group Call | |
| Originating MCPTT user ID | "sip:mcptt-client-B@mcptt-op.gov" | pre-set MCPTT user ID | |

Table 7.1.8.3.3-3: GROUP CALL ACCEPT (step 4, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.3.1-1 | | | |
|---|--------------|----------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "0000011" | Emergency Group Call | |

Table 7.1.8.3.3-4: GROUP CALL ACCEPT (step 15, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.3.1-1 | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | "00000100" | Imminent Peril Group Call | |

Table 7.1.8.3.3-5: Floor Granted (step 6, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | any allowed value | | |
| User ID | | | |
| User ID | "sip:mcptt-client-B@mcptt-op.gov" | | |
| Queue Size | | | |
| Queue Size | "0" | the numbers of queued MCPTT clients in the MCPTT call | |
| SSRC of queued floor participant | Not present | | |
| Queued User ID | Not present | | |
| Queued User ID | Not present | | |
| Queue Info | Not present | | |
| Queue Position Info | Not present | | |
| Queue Priority Level | Not present | | |
| Floor Indicator | | | |
| Floor Indicator | '0001000000000000' | bit D=1 (Emergency call) | |

Table 7.1.8.3.3-6: Floor Granted (step 17, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Duration | | | |
| Duration | any allowed value | | |
| Floor priority | any allowed value | | |
| User ID | | | |
| User ID | "sip:mcptt-client-B@mcptt-op.gov" | | |
| Queue Size | | | |
| Queue Size | "0" | the numbers of queued MCPTT clients in the MCPTT call | |
| SSRC of queued floor participant | Not present | | |
| Queued User ID | Not present | | |
| Queued User ID | Not present | | |
| Queue Info | Not present | | |
| Queue Position Info | Not present | | |
| Queue Priority Level | Not present | | |
| Floor Indicator | | | |
| Floor Indicator | '0000100000000000' | bit E=1 (Imminent peril call) | |

Table 7.1.8.3.3-7: Floor Request (step 8, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | "sip:mcptt-client-A@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '00010X0000000000' | bit D=1 (Emergency call) bit F=X (Queueing supported) any value | |

Table 7.1.8.3.3-8: Floor Request (step 19, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | "sip:mcptt-client-A@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '00001X0000000000' | bit E=1 (Imminent peril call) bit F=X (Queueing supported) any value | |

Table 7.1.8.3.3-9: Floor Deny (step 9, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|---------------------------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reject Cause | | | |
| Reject Phrase | "Another MCPTT client has permission" | | |
| User ID | | | |
| User ID | "sip:mcptt-client-A@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '0001000000000000' | bit D=1 (Emergency call) | |

Table 7.1.8.3.3-10: Floor Deny (step 20, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK | | | |
|---|---------------------------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reject Cause | | | |
| Reject Phrase | "Another MCPTT client has permission" | | |
| User ID | | | |
| User ID | "sip:mcptt-client-A@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '0000100000000000' | bit E=1 (Imminent peril call) | |

Table 7.1.8.3.3-11: Floor Release (step 10, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | "sip:mcptt-client-B@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '0001000000000000' | bit D=1 (Emergency call) | |

Table 7.1.8.3.3-12: Floor Release (step 21, Table 7.1.8.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK | | | |
|---|-----------------------------------|-------------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | "sip:mcptt-client-B@mcptt-op.gov" | | |
| Floor Indicator | | | |
| Floor Indicator | '0000100000000000' | bit E=1 (Imminent peril call) | |

7.1.9 Off-network / Group Call / Emergency Alert / Emergency Alert Retransmission / Cancel Emergency Alert / Client Originated (CO)

7.1.9.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate emergency alerts in off-network environment, and the UE (MCPTT Client) is in an off-network
environment }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT emergency alert }
  then { UE (MCPTT Client) sends a GROUP EMERGENCY ALERT message and enters the "E2: Emergency
state" state }
}
```

(2)

```
with { UE (MCPTT Client) in the "E2: Emergency state" state, and the UE (MCPTT Client) is in an off-
network environment }
ensure that {
  when { the timer TFE2 (emergency alert retransmission) expires }
  then { UE (MCPTT Client) retransmits the MCPTT emergency alert by sending a GROUP EMERGENCY
ALERT message }
}
```

(3)

```
with { UE (MCPTT Client) in the "E2: Emergency state" state, and the UE (MCPTT Client) is in an off-
network environment }
ensure that {
  when { the MCPTT User requests to cancel the MCPTT emergency alert }
  then { UE (MCPTT Client) sends a GROUP EMERGENCY ALERT CANCEL message and enters the "E1: Not in
emergency state" state }
}
```

7.1.9.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 12.2.3.1, 12.2.3.2, 12.2.3.5. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 12.2.3.1]

When in state "E1: Not in emergency state", upon receiving an indication from the MCPTT user to transmit an emergency alert for an MCPTT group ID, and the values of "`<x>/<x>/Common/MCPTTGroupCall/EmergencyAlert/Authorised`" leaf node present in the user profile and "`<x>/<x>/Common/AllowedEmergencyAlert`" present in group configuration as specified in 3GPP TS 24.383 [45] are set to "true", the MCPTT client:

- 1) shall set the stored emergency state as "true";
- 2) shall set the stored MCPTT group ID to the indicated MCPTT group ID;

- 3) shall generate a GROUP EMERGENCY ALERT message as specified in subclause 15.1.16. In the GROUP EMERGENCY ALERT message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID;
 - b) shall set the Originating MCPTT user ID IE to own MCPTT user ID;
 - c) shall set the Organization name IE to own organization name; and
 - d) may set the User location IE with client's current location, if requested;
- 4) shall send the GROUP EMERGENCY ALERT message as specified in subclause 10.2.1.1.1;
- 5) shall start timer TFE2 (emergency alert retransmission); and
- 6) shall enter "E2: Emergency state" state.

[TS 24.379, clause 12.2.3.2]

When in state "E2: Emergency state", upon expiry of timer TFE2 (emergency alert retransmission), the MCPTT client:

- 1) shall generate a GROUP EMERGENCY ALERT message as specified in subclause 15.1.16. In the GROUP EMERGENCY ALERT message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID;
 - b) shall set the originating MCPTT user ID IE to own MCPTT user ID;
 - c) shall set the Organization name IE to own organization name; and
 - d) may set the Location IE with client's current location, if requested; and
- 2) shall send the GROUP EMERGENCY ALERT message as specified in subclause 10.2.1.1.1;
- 3) shall start the timer TFE2 (emergency alert retransmission); and
- 4) shall remain in the current state.

[TS 24.379, clause 12.2.3.5]

When in "E2: Emergency state", upon receiving an indication from the MCPTT user to cancel an emergency alert and the value of "`/<x>/<x>/Common/MCPTTGroupCall/EmergencyAlert/Cancel`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] set to "true", the MCPTT client:

- 1) shall set the stored emergency state as "false";
- 2) shall generate a GROUP EMERGENCY ALERT CANCEL message as specified in subclause 15.1.18. In the GROUP EMERGENCY ALERT CANCEL message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the stored MCPTT group ID;
 - b) shall set the Originating MCPTT user ID IE to own MCPTT user ID; and
 - c) shall set the Sending MCPTT user ID IE to own MCPTT user ID;
- 3) shall send the GROUP EMERGENCY ALERT CANCEL message as specified in subclause 10.2.1.1.1;
- 4) shall stop timer TFE2 (emergency alert retransmission); and
- 5) shall enter "E1: Not in emergency state" state.

7.1.9.3 Test description

7.1.9.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.9.3.2 Test procedure sequence

Table 7.1.9.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|----------------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network emergency alert (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a GROUP EMERGENCY ALERT message? (NOTE 2) | --> | GROUP EMERGENCY ALERT | 1 | P |
| 4A | SS starts Timer=10s (TFE2 (emergency alert retransmission)) | - | - | - | - |
| 5 | The SS-UE1 (MCPTT client) responds to the GROUP EMERGENCY ALERT by sending a GROUP EMERGENCY ALERT ACK | <-- | GROUP EMERGENCY ALERT ACK | - | - |
| 6 | Timer=10s expires | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) send a GROUP EMERGENCY ALERT message? (NOTE 2) | --> | GROUP EMERGENCY ALERT | 2 | P |
| 8 | Make the UE (MCPTT Client) cancel the emergency alert (NOTE 1), (NOTE 3) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) send a GROUP EMERGENCY ALERT CANCEL message? (NOTE 1) | --> | GROUP EMERGENCY ALERT CANCEL | 3 | P |
| 10 | The SS-UE1 (MCPTT client) responds to the GROUP EMERGENCY ALERT CANCEL by sending a GROUP EMERGENCY ALERT CANCEL ACK | <-- | GROUP EMERGENCY ALERT CANCEL ACK | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |
| NOTE 2: Timer TFE2 (emergency alert retransmission) is started upon the sending of the GROUP EMERGENCY ALERT message. Timer TFE2 (emergency alert retransmission)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expiry of TFE2, the MCPTT Client retransmits the GROUP EMERGENCY ALERT message. | | | | | |
| NOTE 3: If the MCPTT User does not perform an action before the expiry of timer TFE2 (emergency alert retransmission), then the MCPTT Client will retransmit the GROUP EMERGENCY ALERT message and the remaining steps will not be valid. Timer TFE2 (emergency alert retransmission) is started upon the sending of the GROUP EMERGENCY ALERT message. Timer TFE2 (emergency alert retransmission)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expiry of TFE2, the MCPTT Client retransmits the GROUP EMERGENCY ALERT message. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified. | | | | | |
| NOTE 4: The MCPP Client stops the TFE2 (emergency alert retransmission) timer upon the sending of the GROUP EMERGENCY ALERT CANCEL message. | | | | | |

7.1.9.3.3 Specific message contents

None

7.1.10 Off-network / Group Call / Emergency Alert / Emergency Alert Retransmission / Cancel Emergency Alert / Client Terminated (CT)

7.1.10.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
receive emergency alerts in off-network environment, and the UE (MCPTT Client) is in an off-network
environment }
ensure that {
  when { UE (MCPTT Client) receives an MCPTT emergency alert via a GROUP EMERGENCY ALERT message }
  then { UE (MCPTT Client) responds by sending a GROUP EMERGENCY ALERT ACK }
}

```

(2)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service, having received an MCPTT
emergency alert, and the UE (MCPTT Client) is in an off-network environment }
ensure that {
  when { UE (MCPTT Client) receives a GROUP EMERGENCY ALERT message from the same MCPTT Client that
sent the previous GROUP EMERGENCY ALERT message, and the timer TFE1 (Emergency Alert) has yet to
expire }
  then { UE (MCPTT Client) shall not send a GROUP EMERGENCY ALERT ACK in response }
}

```

(3)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service, having received an MCPTT
emergency alert, and the UE (MCPTT Client) is in an off-network environment }
ensure that {
  when { UE (MCPTT Client) receives a GROUP EMERGENCY ALERT message from the same MCPTT Client that
sent the previous GROUP EMERGENCY ALERT message, and the timer TFE1 (Emergency Alert) expired }
  then { UE (MCPTT Client) responds by sending a GROUP EMERGENCY ALERT ACK }
}

```

(4)

```

with { UE (MCPTT Client) registered and authorised for MCPTT Service, having received an MCPTT
emergency alert, and the UE (MCPTT Client) is in an off-network environment }
ensure that {
  when { UE (MCPTT Client) receives a GROUP EMERGENCY ALERT CANCEL message from the same MCPTT
Client that sent the previous GROUP EMERGENCY ALERT message }
  then { UE (MCPTT Client) responds by sending a GROUP EMERGENCY ALERT CANCEL ACK }
}

```

7.1.10.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 12.2.3.3, 12.2.3.4, 12.2.3.6, 12.2.3.7. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 12.2.3.3]

When in state "E1: Not in emergency state" or in "E2: Emergency state", upon receiving a GROUP EMERGENCY ALERT message with the Originating MCPTT user ID IE not stored in the list of users in emergency, the MCPTT client:

- 1) shall store the Originating MCPTT user ID IE and location IE in the list of users in emergency;
- 2) shall generate a GROUP EMERGENCY ALERT ACK message as specified in subclause 15.1.17. In the GROUP EMERGENCY ALERT ACK message, the MCPTT client:

- a) shall set the MCPTT group ID IE to the MCPTT group ID IE of the received GROUP EMERGENCY ALERT message;
 - b) shall set the Sending MCPTT user ID IE to own MCPTT user ID; and
 - c) shall set the Originating MCPTT user ID IE to the Originating MCPTT user ID IE of the received GROUP EMERGENCY ALERT message; and
- 3) shall send the GROUP EMERGENCY ALERT ACK message as specified in subclause 10.2.1.1.1;
 - 4) shall start timer TFE1 (Emergency Alert); and
 - 5) shall remain in the current state.

NOTE: Each instance of timer TFE1 is per MCPTT user ID.

[TS 24.379, clause 12.2.3.4]

When in state "E1: Not in emergency state" or in "E2: Emergency state", upon receiving a GROUP EMERGENCY ALERT message with the Originating MCPTT user ID IE stored in the list of users in emergency, the MCPTT client:

- 1) may update the stored location of the user with the received Location IE;
- 2) shall restart the associated timer TFE1 (Emergency Alert); and
- 3) shall remain in the current state.

[TS 24.379, clause 12.2.3.6]

When in state "E1: Not in emergency state" or in "E2: Emergency state", upon receiving a GROUP EMERGENCY ALERT CANCEL message with the Originating MCPTT user ID IE stored in the list of users in emergency, the MCPTT client:

- 1) shall remove the MCPTT user ID and associated location information from the stored list of users in emergency;
- 2) shall generate a GROUP EMERGENCY ALERT CANCEL ACK message as specified in subclause 15.1.19. In the GROUP EMERGENCY ALERT CANCEL ACK message, the MCPTT client:
 - a) shall set the MCPTT group ID IE to the MCPTT group ID IE of the received GROUP EMERGENCY ALERT CANCEL message; and
 - b) shall set the Sending MCPTT user ID IE to own MCPTT user ID; and
 - c) shall set the Originating MCPTT user ID IE to the Originating MCPTT user ID IE of the received GROUP EMERGENCY ALERT message;
- 3) shall send the GROUP EMERGENCY ALERT CANCEL ACK message as specified in subclause 10.2.1.1.1;
- 4) shall stop the associated timer TFE1 (Emergency Alert); and 5) shall remain in the current state.

[TS 24.379, clause 12.2.3.7]

When in state "E1: Not in emergency state" or in "E2: Emergency state", upon expiry of timer TFE1 (Emergency Alert) associated with a stored MCPTT user ID, the MCPTT client:

- 1) shall remove the MCPTT user ID and associated location information from the stored list of users in emergency; and
- 2) shall remain in the current state.

7.1.10.3 Test description

7.1.10.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- TFE1(emergency alert) set to 15 seconds ("<x>/OffNetwork/Timers/TFE1" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.10.3.2

Test procedure sequence

Table 7.1.10.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|------------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP EMERGENCY ALERT (NOTE 2), (NOTE 3), (NOTE 4) | <-- | GROUP EMERGENCY ALERT | - | - |
| 3A | SS starts Timer=10s (TFE2 (emergency alert retransmission)) | - | - | - | - |
| 3B | SS starts Timer=15s (TFE1 (Emergency Alert)) | - | - | - | - |
| 4 | Void | - | - | - | - |
| 5 | Check: Does the UE (MCPTT Client) respond to the GROUP EMERGENCY ALERT by sending a GROUP EMERGENCY ALERT ACK? | --> | GROUP EMERGENCY ALERT ACK | 1 | P |
| 5A | Timer=10s expires (TFE2 (emergency alert retransmission)) | - | - | - | - |
| 6 | Upon expiry of the timer TFE2 (emergency alert retransmission), the SS-UE1 (MCPTT client) retransmits the emergency alert by sending a GROUP EMERGENCY ALERT | <-- | GROUP EMERGENCY ALERT | - | - |
| 6A | SS starts Timer=10s (TFE2 (emergency alert retransmission)) | - | - | - | - |
| 7 | Check: Does the UE (MCPTT Client) respond to the GROUP EMERGENCY ALERT by sending in the next 5 seconds a GROUP EMERGENCY ALERT ACK? | --> | GROUP EMERGENCY ALERT ACK | 2 | F |
| 7A | Wait 5 seconds for GROUP EMERGENCY ALERT ACK | - | - | - | - |
| 8 | Timer=15s expires (TFE1 (Emergency Alert)) (NOTE 5) | - | - | - | - |
| 8A | Wait 5 seconds for expiration of timer TFE2 (emergency alert retransmission) | - | - | - | - |
| 8B | Timer=10s expires (TFE2 (emergency alert retransmission)) | - | - | - | - |
| 9 | SS-UE1 (MCPTT client) sends a GROUP EMERGENCY ALERT (NOTE 4) | <-- | GROUP EMERGENCY ALERT | - | - |
| 10 | Void | - | - | - | - |
| 11 | Check: Does the UE (MCPTT Client) respond to the GROUP EMERGENCY ALERT by sending a GROUP EMERGENCY ALERT ACK? | --> | GROUP EMERGENCY ALERT ACK | 3 | P |
| 12 | SS-UE1 (MCPTT client) sends a GROUP EMERGENCY ALERT | <-- | GROUP EMERGENCY ALERT CANCEL | - | - |
| 13 | Void | - | - | - | - |

| | | | | | |
|--|--|-----|----------------------------------|---|---|
| 14 | Check: Does the UE (MCPTT Client) respond to the GROUP EMERGENCY ALERT CANCEL by sending a GROUP EMERGENCY ALERT CANCEL ACK? | --> | GROUP EMERGENCY ALERT CANCEL ACK | 4 | P |
| <p>NOTE 1: This is expected to be done via a suitable implementation dependent MMI.</p> <p>NOTE 2: Timer TFE1(emergency alert) is started by the MCPTT Client upon the receiving of the GROUP EMERGENCY ALERT message. Timer TFE1 (emergency alert)=15s, as defined as defined in the Pre-test conditions. At the expire of TFE1, the MCPTT Client assumes the end of the emergency state and removes the associated user from the list.</p> <p>NOTE 3: Timer TFE2 (emergency alert retransmission) is started by the SS upon the sending of the GROUP EMERGENCY ALERT message. Timer TFE2 (emergency alert retransmission)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expire of TFE2, the SS retransmits the GROUP EMERGENCY ALERT message.</p> <p>NOTE 4: The UE (MCPTT Client) stores the Originating MCPTT user ID IE in the list of users in emergency.</p> <p>NOTE 5: Upon expiry of the timer TFE1 (Emergency Alert), the UE (MCPTT Client) removes the MCPTT user ID from the stored list of users in emergency</p> | | | | | |

7.1.10.3.3 Specific message contents

None

7.1.11 Off-network / Group Call / Broadcast Group Call / Broadcast Group Call Retransmitting / Broadcast Group Call Release / Client Originated (CO)

7.1.11.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
initiate broadcast calls in off-network environment, and the UE (MCPTT Client) is in an off-network
environment }
ensure that {
  when { the MCPTT User requests to initiate an MCPTT broadcast call }
  then { UE (MCPTT Client) sends a GROUP CALL BROADCAST message and enters the "B2: in-progress
broadcast group call" state }
}
```

(2)

```
with { UE (MCPTT Client) in the "B2: in-progress broadcast group call" state, and the UE (MCPTT
Client) is in an off-network environment }
ensure that {
  when { the timer TFB2 (broadcast retransmission) expires }
  then { UE (MCPTT Client) retransmits the GROUP CALL BROADCAST message }
}
```

(3)

```
with { UE (MCPTT Client) in the "B2: in-progress broadcast group call" state, and the UE (MCPTT
Client) is in an off-network environment }
ensure that {
  when { the MCPTT User requests to end the MCPTT broadcast call }
  then { UE (MCPTT Client) sends a GROUP CALL BROADCAST END message and enters the "B1: start-
stop" state }
}
```

7.1.11.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.3.2.4.1, 10.3.2.4.9, 10.3.2.4.7, TS 24.380 clause 7.2.3.2.2. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.3.2.4.1]

When in the "B1: start-stop" state, upon the indication from MCPTT user to initiate the broadcast group call, the MCPTT client:

- 1) shall generate an SDP body as specified in subclause 10.2.1.1.2 and store it as the SDP body of the call;
- 2) shall generate a random number with uniform distribution between 0 and 65535 and store it as the call identifier of the call;
- 3) shall store own MCPTT user ID as the originating MCPTT user ID of the call;
- 4) shall store "BROADCAST GROUP CALL" as the current call type;
- 5) shall generate a GROUP CALL BROADCAST message as specified in subclause 15.1.20. In the GROUP CALL BROADCAST message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;
 - b) shall set the Call type IE to the stored current call type;
 - c) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call;
 - d) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
 - e) shall set the SDP IE to the stored SDP body of the call;
- 6) shall set the ProSe per-packet priority to the value corresponding to MCPTT off-network broadcast call as described in 3GPP TS 24.383 [45];
- 7) shall start floor control as originating floor participant as described specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 8) shall send the GROUP CALL BROADCAST message as specified in subclause 10.2.1.1.1;
- 9) shall establish a media session based on the stored SDP body of the call;
- 10) shall start timer TFB2 (broadcast retransmission); and
- 11) shall enter the "B2: in-progress broadcast group call" state.

[TS 24.379, clause 10.3.2.4.9]

When in the "B2: in-progress broadcast group call" state, upon expiry of timer TFB2 (broadcast retransmission), the MCPTT client:

- 1) shall generate a GROUP CALL BROADCAST message as specified in subclause 15.1.20. In the GROUP CALL BROADCAST message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;
 - b) shall set the Call type IE to the stored current call type;
 - c) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call;
 - d) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call; and
 - e) shall set the SDP IE to the stored SDP body of the call;
- 2) shall send the GROUP CALL BROADCAST message as specified in subclause 10.2.1.1.1;
- 3) shall restart timer TFB2 (broadcast retransmission); and
- 4) shall remain in the "B2: in-progress broadcast group call" state.

[TS 24.379, clause 10.3.2.4.7]

When in the "B2: in-progress broadcast group call" state, upon an indication from the originating MCPTT user to release the in-progress broadcast group call, the MCPTT client:

- 1) shall release the media session;
- 2) shall generate a GROUP CALL BROADCAST END message as specified in subclause 15.1.21. In the GROUP CALL BROADCAST END message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier of the call;
 - b) shall set the Originating MCPTT user ID IE to the stored originating MCPTT user ID of the call; and
 - c) shall set the MCPTT group ID IE to the stored MCPTT group ID of the call;
- 3) shall send the GROUP CALL BROADCAST END message as specified in subclause 10.2.1.1.1;
- 4) shall stop timer TFB2 (broadcast retransmission);
- 5) shall clear the stored call identifier;
- 6) shall stop floor control; and
- 7) shall enter the "B1: start-stop" state.

[TS 24.380, clause 7.2.3.2.2]

When an MCPTT call is established with session announcement including an explicit floor request, the originating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall send Floor Granted message towards other floor participants. The Floor Granted message:
 - a. shall include the granted priority in the Floor priority field;
 - b. shall include the MCPTT user's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
3. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and
4. shall enter 'O: has permission' state.

7.1.11.3 Test description

7.1.11.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.11.3.2 Test procedure sequence

Table 7.1.11.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|--|--|------------------|--------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT Client) initiate an off-network broadcast call (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT off-network call establishment are described in TS 36.579-1 [2] clause 5.4.11 'MCX CO communication over ProSe direct one-to-many communication out of E-UTRA coverage / Monitoring/Discoverer procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a GROUP CALL BROADCAST message? (NOTE 2) | --> | GROUP CALL BROADCAST | 1 | P |
| 4A | SS starts Timer=10s (Timer TFB2 (broadcast retransmission)) | - | - | - | - |
| 5 | Check: Does the UE (MCPTT Client) send a Floor Granted message towards the other floor participants? | --> | Floor Granted | 1 | P |
| 6 | Timer=10s expires | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) send a GROUP CALL BROADCAST message using the same Call identifier IE as used in step 4? | --> | GROUP CALL BROADCAST | 2 | P |
| 8 | Make the UE (MCPTT Client) cancel the broadcast call (NOTE 1), (NOTE 3) | - | - | - | - |
| 9 | Check: Does the UE (MCPTT client) send a GROUP CALL BROADCAST END message and enter the "B1: start-stop" state? (NOTE 4) | --> | GROUP CALL BROADCAST END | 3 | P |
| <p>NOTE 1: This is expected to be done via a suitable implementation dependent MMI.</p> <p>NOTE 2: Timer TFB2 (broadcast retransmission) is started by the MCPTT Client upon the sending of the GROUP CALL BROADCAST message. Timer TFB2 (broadcast retransmission)=10s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expire of timer TFB2 (broadcast retransmission), the MCPTT Client resends the GROUP CALL BROADCAST message.</p> <p>NOTE 3: If the MCPTT User does not cancel the broadcast call before timer TFB2 (broadcast retransmission) expires, then the MCPTT Client will resend the GROUP CALL BROADCAST message per TS 24.379 [9] and the remaining steps will not be valid. If during test execution it is found that the specified timer value is not large enough, then a new value needs to be specified.</p> <p>NOTE 4: Timer TFB2 (broadcast retransmission) is stopped by the MCPTT Client upon the sending of the GROUP CALL BROADCAST END message.</p> | | | | | |

7.1.11.3.3 Specific message contents

Table 7.1.11.3.3-1: GROUP CALL BROADCAST (step 7, Table 7.1.11.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.6.1-1 | | | |
|---|---|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call identifier | Use the same Call identifier as used in the GROUP CALL BROADCAST message sent in step 3 | | |

7.1.12 Off-network / Group Call / Broadcast Group Call / MCPTT User Ack Not Required / Originator Releases Call / Client Terminated (CT)

7.1.12.1 Test Purpose (TP)

(1)

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with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to
receive broadcast calls in off-network environment, and the UE (MCPTT Client) is in an off-network
environment, and the UE (MCPTT Client) has received a GROUP CALL BROADCAST message }
ensure that {
  when { MCPTT User requests the floor }
  then { UE (MCPTT Client) does not send a Floor Request message }
}

```

7.1.12.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.3.2.4.2, 10.3.2.4.8, TS 24.380 clause 7.2.3.2.9. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.3.2.4.2]

When in the "B1: start-stop" state, upon receiving a GROUP CALL BROADCAST message with the Call identifier IE not matching any in-progress broadcast group call, the MCPTT client:

- 1) shall store the value of the Call identifier IE of the GROUP CALL BROADCAST message as the call identifier of the call;
- 2) shall store the value of the Call type IE of the GROUP CALL BROADCAST message as the received current call type;
- 3) shall store the value of the SDP IE of the GROUP CALL BROADCAST message as the SDP body of the call;
- 4) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL BROADCAST message as the originating MCPTT user ID of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL BROADCAST message as the MCPTT group ID of the call;
- 6) if the terminating UE is configured that the terminating MCPTT user acknowledgement is required upon a terminating call request reception:
 - i) shall start timer TFB3 (waiting for the user); and
 - ii) shall enter the "B3: pending user action" state; and
- 7) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
 - i) shall establish a media session based on the stored SDP body of the call;
 - ii) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];

- iii) shall start timer TFB1 (max duration); and
- iv) shall enter the "B2: in-progress broadcast group call" state.

[TS 24.379, clause 10.3.2.4.8]

When in the "B2: in-progress broadcast group call" state or "B4: ignoring same call ID" state, upon receiving GROUP CALL BROADCAST END message with the same Call identifier IE as the stored call identifier, the MCPTT client:

- 1) shall release media session;
- 2) shall stop timer TFB1 (max duration);
- 3) shall clear the stored call identifier;
- 4) shall stop floor control, if running; and
- 5) shall enter the "B1: start-stop" state.

[TS 24.380, clause 7.2.3.2.9]

When an MCPTT broadcast call is established the terminating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall start timer T203 (End of RTP media); and
3. shall enter 'O: has no permission' state.

NOTE: In MCPTT broadcast call, only originating MCPTT user is allowed to request floor and transmit media. A Floor Request message is locally denied to terminating MCPTT user, if requested.

7.1.12.3 Test description

7.1.12.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)

- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
- TFG4 (waiting for the user) set to 0 (a value to suit the test case sequence) ("~~x~~/OffNetwork/Timers/TFB1" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.12.3.2 Test procedure sequence

Table 7.1.12.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|---|--|------------------|--------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST (NOTE 2) | <-- | GROUP CALL BROADCAST | - | - |
| 3A | Make the UE (MCPTT User) request the floor (NOTE 1), (NOTE 3) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT Client) send in the next 5 seconds a Floor Request message to the floor participants? | --> | Floor Request | 1 | F |
| 5 | Wait 5 seconds for the Floor Request message | - | - | - | - |
| 6 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST END (NOTE 4) | <-- | GROUP CALL BROADCAST END | - | - |
| <p>NOTE 1: This is expected to be done via a suitable implementation dependent MMI.</p> <p>NOTE 2: Timer TFB1 (max duration) is started by the MCPTT Client upon the receiving of the GROUP CALL BROADCAST message. Timer TFB1 (max duration)=300s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expire of TFB1 (max duration), the MCPTT Client will terminate participation in the broadcast call.</p> <p>NOTE 3: It is possible that the MCPTT Client may not allow the MCPTT User to request the floor.</p> <p>NOTE 4: Timer TFB1 (max duration) is stopped by the MCPTT Client upon the receiving of the GROUP CALL BROADCAST END message.</p> | | | | | |

7.1.12.3.3 Specific message contents

None

7.1.13 Off-network / Group Call / Broadcast Group Call / MCPTT User Ack Required / MCPTT User Reject / MCPTT User Accept / MCPTT User Releases Call / Client Terminated (CT)

7.1.13.1 Test Purpose (TP)

(1)

with { UE (MCPTT Client) registered and authorised for MCPTT Service, including authorised to receive broadcast calls in off-network environment, and the UE (MCPTT Client) configured that MCPTT user acknowledgement is required upon a terminating call request reception, and the UE (MCPTT Client) is in an off-network environment }
ensure that {

```

when { UE (MCPTT Client) receives a GROUP CALL BROADCAST message with a Call identifier that has
not been previously received}
  then { UE (MCPTT Client) enters the "B3: pending user action" state and requests the user to
reject or accept the incoming broadcast call }
}

```

(2)

```

with { UE (MCPTT Client) having received a GROUP CALL BROADCAST message }
ensure that {
  when { the MCPTT User rejects the incoming off-network broadcast call}
    then { UE (MCPTT Client) enters the "B4: ignoring same call ID" state and ignores subsequent
GROUP CALL BROADCAST messages that match with the stored Call identifier }
}

```

7.1.13.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.379 clauses 10.3.2.4.2, 10.3.2.4.4, 10.3.2.4.8, 10.3.2.4.3, 10.3.2.4.6, 10.3.2.4.10, 10.3.2.4.11. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 10.3.2.4.2]

When in the "B1: start-stop" state, upon receiving a GROUP CALL BROADCAST message with the Call identifier IE not matching any in-progress broadcast group call, the MCPTT client:

- 1) shall store the value of the Call identifier IE of the GROUP CALL BROADCAST message as the call identifier of the call;
- 2) shall store the value of the Call type IE of the GROUP CALL BROADCAST message as the received current call type;
- 3) shall store the value of the SDP IE of the GROUP CALL BROADCAST message as the SDP body of the call;
- 4) shall store the value of the Originating MCPTT user ID IE of the GROUP CALL BROADCAST message as the originating MCPTT user ID of the call;
- 5) shall store the value of the MCPTT group ID IE of the GROUP CALL BROADCAST message as the MCPTT group ID of the call;
- 6) if the terminating UE is configured that the terminating MCPTT user acknowledgement is required upon a terminating call request reception:
 - i) shall start timer TFB3 (waiting for the user); and
 - ii) shall enter the "B3: pending user action" state; and
- 7) if the terminating UE is configured that the terminating MCPTT user acknowledgement is not required upon a terminating call request reception:
 - i) shall establish a media session based on the stored SDP body of the call;
 - ii) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
 - iii) shall start timer TFB1 (max duration); and
 - iv) shall enter the "B2: in-progress broadcast group call" state.

[TS 24.379, clause 10.3.2.4.4]

When in the "B3: pending user action" state, upon an indication from the MCPTT user to reject the incoming broadcast group call, the MCPTT client:

- 1) shall stop timer TFB3 (waiting for the user);
- 2) shall start timer TFB1 (max duration); and
- 3) shall enter the "B4: ignoring same call ID" state.

[TS 24.379, clause 10.3.2.4.8]

When in the "B2: in-progress broadcast group call" state or "B4: ignoring same call ID" state, upon receiving GROUP CALL BROADCAST END message with the same Call identifier IE as the stored call identifier, the MCPTT client:

- 1) shall release media session;
- 2) shall stop timer TFB1 (max duration);
- 3) shall clear the stored call identifier;
- 4) shall stop floor control, if running; and
- 5) shall enter the "B1: start-stop" state.

[TS 24.379, clause 10.3.2.4.3]

When in the "B3: pending user action" state, upon indication from the MCPTT user to accept the incoming broadcast group call, the MCPTT client:

- 1) shall establish a media session based on the stored SDP body of the call;
- 2) shall start floor control as terminating floor participant as described specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 3) shall stop timer TFB3 (waiting for the user);
- 4) shall start timer TFB1 (max duration); and
- 5) shall enter the "B2: in-progress broadcast group call" state.

[TS 24.379, clause 10.3.2.4.6]

When in the "B2: in-progress broadcast group call" state, upon an indication from the terminating MCPTT user to release the in-progress broadcast group call, the MCPTT client:

- 1) shall release the media session;
- 2) shall stop floor control; and
- 3) shall enter the "B4: ignoring same call ID" state.

[TS 24.379, clause 10.3.2.4.10]

When in the "B4: ignoring same call ID" state, upon receiving GROUP CALL BROADCAST message and if the call identifier in GROUP CALL BROADCAST message matches with the stored call identifier the MCPTT client:

- 1) shall restart timer TFB1 (max duration); and
- 2) shall remain in "B4: ignoring same call ID" state.

[TS 24.379, clause 10.3.2.4.11]

When in the "B2: in-progress broadcast group call" state or "B4: ignoring same call ID" state, upon expiry of timer TFB1 (max duration) the MCPTT client:

- 1) shall release the media session;
- 2) shall clear the stored call identifier;
- 3) shall stop floor control, if running; and
- 4) shall enter the "B1: start-stop" state.

7.1.13.3 Test description

7.1.13.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server)
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCPTT UE registration' as specified in TS 36.579-1 [2] clause 5.4.2.
 - UE (MCPTT Client) is configured such that user acknowledgement is required upon a terminating call request reception
- TFB1 (max duration) set to 60 seconds ("~~x~~/OffNetwork/Timers/TFB1" leaf node present in the UE initial configuration as specified in 3GPP TS 24.483 [13])
- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is switched-off.
- UE States at the end of the preamble
 - The UE is in state 'switched-off'.

7.1.13.3.2

Test procedure sequence

Table 7.1.13.3.2-1: Main Behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|--|------------------|--------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.10 'MCX CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery / One-to-many communication'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 3 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST (NOTE 2) | <-- | GROUP CALL BROADCAST | - | - |
| 4 | Check: Does the UE (MCPTT Client) enter the "B3: pending user action" state and notifies the MCPTT User of an incoming broadcast call? (NOTE 3). | - | - | 1 | P |
| 5 | Make the UE (MCPTT Client) reject the incoming off-network broadcast call (NOTE 1), (NOTE 4) | - | - | - | - |
| 6 | Void | - | - | - | - |
| 7 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST with the same Call identifier as used in step 3 | <-- | GROUP CALL BROADCAST | - | - |
| 8 | Check: Does the UE (MCPTT Client) notify the MCPTT User in the next 60 seconds of an incoming broadcast call? (NOTE 3) | - | - | 2 | F |
| 9 | Wait 60 seconds (TFB1 (max duration)) | - | - | - | - |
| 10 | Void | - | - | 3 | P |
| 11 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST with a different Call identifier as used in step 3 | <-- | GROUP CALL BROADCAST | - | - |
| 12 | Check: Does the UE (MCPTT Client) notify the MCPTT User of an incoming broadcast call? (NOTE 3) | - | - | 1 | P |
| 13 | Make the UE (MCPTT Client) accept the incoming off-network broadcast call (NOTE 1), (NOTE 5) | - | - | - | - |
| 14 | Void | - | - | 4 | P |
| 15 | Void | - | - | - | - |
| 16 | Void | - | - | - | - |
| 17 | SS-UE1 (MCPTT client) sends a GROUP CALL BROADCAST END (NOTE 6) | <-- | GROUP CALL BROADCAST END | - | - |
| 18 | Void | - | - | 3 | P |

| | |
|---------|---|
| NOTE 1: | This is expected to be done via a suitable implementation dependent MMI. |
| NOTE 2: | Timer TFB3 (waiting for the user) is started by the MCPTT Client upon the receiving of the GROUP CALL BROADCAST message. Timer TFB3 (waiting for the user)=20s, as defined in TS 36.579-1 [2], Table 5.5.8.1-1. At the expire of TFB3 (waiting for the user), the MCPTT Client will terminate the incoming call notification. |
| NOTE 3: | Notification to the MCPTT User that there is an incoming call requiring user approval or rejection is expected to be done via a suitable implementation dependent MMI |
| NOTE 4: | If the MCPTT User does not perform an action before timer TFB3 (waiting for the user) expires, then, the MCPTT Client will terminate the incoming call notification. Timer TFB1 (max duration) is started upon the MCPTT User rejecting the terminating call. Timer TFB1 (max duration)=60s, as defined in the Pre-test conditions. The MCPTT Client stops timer TFB3 (waiting for the user) upon rejecting the call. If during test execution it is found that the specified timer(s) value(s) are not large enough, then new value(s) need to be specified. |
| NOTE 5: | Timer TFB1 (max duration) is started upon the MCPTT User accepting the terminating call. Timer TFB1 (max duration)=60s, as defined in the Pre-test conditions. The MCPTT Client stops timer TFB3 (waiting for the user). |
| NOTE 6: | The MCPTT Client stops stop timer TFB1 (max duration). |

7.1.13.3.3 Specific message contents

Table 7.1.13.3.3-1: GROUP CALL BROADCAST (steps 7, 11, Table 7.1.13.3.2-1)

| Derivation Path: TS 36.579-1 [2], Table 5.5.5.6.1-1 | | | |
|---|---|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call identifier | Use the same Call identifier as used in the GROUP CALL BROADCAST message sent in step 2 | | |

7.2 Off-network Private Calls

7.2.1 Off-network / Private Call / On-demand / Automatic Commencement Mode / No Response to Private Call Setup Request / Private call setup success / With Floor Control / Upgrade to Emergency Call / Cancellation of Emergency on User request / Client Originated (CO)

7.2.1.1 Test Purpose (TP)

(1)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private and private emergency calls with automatic commencement in off-network
environment, and, the UE is in an off-network environment }
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private call, on-demand Automatic
Commencement Mode }
  then { UE (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST message requesting establishment of
a private call on-demand Automatic Commencement Mode }
}

```

(2)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private and private emergency calls with automatic commencement in off-network
environment, and, the UE is in an off-network environment, and, UE (MCPTT Client) having sent a
PRIVATE CALL SETUP REQUEST message requesting establishment of a private call }
ensure that {
  when { the UE (MCPTT Client) does not receive response to the request until the timer TFP1
(private call request retransmission) expires }
  then { UE (MCPTT Client) retransmits the PRIVATE CALL SETUP REQUEST message requesting private
call if the counter CFP1 (private call request retransmission) has not reached its max value and

```

```

increments the counter CFPl with one, and, stops re-transmitting if the counter CFPl (private call
request retransmission) has reached its max value }
}

```

(3)

```

with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private and private emergency calls with automatic commencement in off-network
environment, and, the UE is in an off-network environment, and, UE (MCPTT Client) having sent a
PRIVATE CALL SETUP REQUEST message requesting establishment of a private call }
ensure that {
  when { the UE (MCPTT Client) receives a PRIVATE CALL ACCEPT message }
  then { UE (MCPTT Client) transmits a PRIVATE CALL ACCEPT ACK message and considers the call as
being established }
}

```

(4)

```

with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the MCPTT User engages in communication with the invited MCPTT User }
  then { UE (MCPTT Client) respects the floor control procedures in off-network environment
imposed by Client having the floor (Floor request/grant/release/deny) }
}

```

(5)

```

with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the MCPTT User wants to upgrade the ongoing MCPTT private call to an MCPTT emergency
private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST message requesting private emergency
call on-demand Automatic Commencement Mode, and, after receiving a PRIVATE CALL ACCEPT message the
UE (MCPTT Client) sends a PRIVATE CALL ACCEPT ACK message and considers the emergency call as being
established }
}

```

(6)

```

with { UE (MCPTT Client) having established an MCPTT private call in off-network environment, and,
having successfully upgraded it to an MCPTT Private Emergency call }
ensure that {
  when { the MCPTT User wants to downgrade the ongoing MCPTT private emergency call to a normal
MCPTT private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL EMERGENCY CANCEL message, and, after receiving a
PRIVATE CALL EMERGENCY CANCEL ACK message, the UE (MCPTT Client) considers the call downgraded to a
Private normal call }
}

```

(7)

```

with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the MCPTT User wants to terminate the ongoing MCPTT private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL RELEASE request and after receiving a PRIVATE CALL
RELEASE ACK messages, leaves the MCPTT session }
}

```

7.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.2.1.1.1, 11.2.1.1.2, 11.2.2.4.2.1, 11.2.2.4.2.2, 11.2.2.4.2.4, 11.2.2.4.2.8, 11.2.2.4.5.7, TS 24.380 clauses 7.1, 7.2.3.2.2, 7.2.3.5.2, 7.2.3.4.2, 7.2.3.5.4, 7.2.3.5.5, 7.2.3.4.3, 7.2.3.3.2, 7.2.3.3.5, 7.2.3.7.2, 11.2.3.4.5.1, 11.2.3.4.6.1, 11.2.3.4.6.3, 11.2.2.4.5.1, 11.2.2.4.5.5. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.2.1.1.1]

In order to participate in a private call, the MCPTT client:

- 1) shall send the MONP message as a UDP message to the local IP address of the MCPTT user, on UDP port TBD, with an IP time-to-live set to 255; and

Editor's note [CT1#95, C1-160392]: Port number for the message is FFS.

2) shall treat UDP messages received on the port TBD as received MONP messages.

NOTE: An MCPTT client that supports IPv6 is supposed to listen to the IPv6 addresses.

[TS 24.379, clause 11.2.1.1.2]

For an off-network MCPTT session, only MCPTT speech is used.

One off-network MCPTT session includes one media-floor control entity.

The MCPTT client shall generate an SDP body for a private call in accordance with rules and procedures of IETF RFC 4566 [12] and IETF RFC 3264 [44].

The MCPTT client:

- 1) shall include in the session-level section:
 - a) the "o=" field with the <username> portion set to a dash;
 - b) the "s=" field with the <session name> portion set to a dash; and
 - c) the "c=" field with the <nettype> portion set to "IN", the <addrtype> portion set to the IP version of the unicast IP address of the MCPTT client and the <connection-address> portion set to the unicast IP address of the MCPTT client;
- 2) shall include the media-level section for MCPTT speech consisting of:
 - a) the "m=" field with the <media> portion set to "audio", the <port> portion set to a port number for MCPTT speech of the MCPTT group, the <proto> field set to "RTP/AVP" and <fmt> portion set indicating RTP payload type numbers;
 - b) the "i=" field with the <session description> portion set to "speech";
 - c) the "a=fmtp:" attribute(s), the "a=rtpmap:" attribute(s) or both, indicating the codec(s) and media parameters of the MCPTT speech; and
 - d) the "a=rtcp:" attribute indicating port number to be used for RTCP at the MCPTT client selected according to the rules and procedures of IETF RFC 3605 [13], if the media steam uses other than the default IP address;
- 3) shall include the media-level section for media-floor control entity consisting of:
 - a) an "m=" line, with the <media> portion set to "application", the <port> portion set to a port number for media-floor control entity of the MCPTT group, the <proto> field set to "udp" and <fmt> portion set to "MCPTT"; and
 - b) the "a=fmtp:MCPTT" attribute indicating the parameters of the media-floor control entity as specified 3GPP TS 24.380 [5]; and
- 4) shall include the MIKEY-SAKKE I_MESSAGE, if generated by the MCPTT client, in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 11.2.2.4.2.1]

When in the "P0: start-stop" state or "P1: ignoring same call id", upon an indication from MCPTT User to initiate a private call and the value of "/<x>/<x>/Common/PrivateCall/Authorised" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true", the MCPTT client:

- 1) shall generate and store the call identifier as a random number uniformly distributed between (0, 65536);
- 2) shall store own MCPTT user ID as caller ID;
- 3) shall store MCPTT user ID of the callee as callee ID;
- 4) shall store "AUTOMATIC COMMENCEMENT MODE" as commencement mode, if requested and the value of "/<x>/<x>/Common/PrivateCall/AutoCommence" leaf node present in the user profile as specified in

3GPP TS 24.383 [45] is set to "true". Otherwise if the value of "/<x>/<x>/Common/PrivateCall/ManualCommence" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true", store "MANUAL COMMENCEMENT MODE" as commencement mode;

- 5) shall create a call type control state machine as described in subclause 11.2.3.2;
- 6) if an end-to-end security context needs to be established then:
 - a) shall use keying material provided by the key management server to generate a PCK as described in 3GPP TS 33.179 [46];
 - b) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.179 [46];
 - c) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.179 [46];
 - d) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.179 [46];
 - e) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.179 [46] and;
 - g) shall store the MIKEY-SAKKE I_MESSAGE for later inclusion in an SDP body;
- 7) may store current user location as user location;
- 8) shall generate and store offer SDP, as defined in subclause 11.2.1.1.2;
- 9) shall generate a PRIVATE CALL SETUP REQUEST message as specified in subclause 15.1.5. In the PRIVATE CALL SETUP REQUEST message, the MCPTT client:
 - a) shall set the Call identifier IE with the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID;
 - d) shall set the Commencement mode IE with the stored commencement mode;
 - e) shall set the Call type IE with the stored current call type associated with the call type control state machine;
 - f) shall set the SDP offer IE with the stored offer SDP; and
 - g) may set the User location IE with the stored user location if the stored current call type associated with the call type control state machine is "EMERGENCY PRIVATE CALL".
- 10) shall send the PRIVATE CALL SETUP REQUEST message towards other MCPTT client according to rules and procedures as specified in subclause 11.2.1.1.1;
- 11) shall initialize the counter CFP1 (private call request retransmission) with the value set to 1;
- 12) shall start timer TFP1 (private call request retransmission); and
- 13) shall enter the "P2: waiting for call response" state.

[TS 24.379, clause 11.2.2.4.2.2]

When in the "P2: waiting for call response" state, upon expiry of timer TFP1 (private call request retransmission), the MCPTT client:

- 1) may update the stored user location with current user location;

- 2) shall increment the value of counter CFP1 (private call request retransmission) by 1;
- 3) shall generate a PRIVATE CALL SETUP REQUEST message as specified in subclause 15.1.5. In the PRIVATE CALL SETUP REQUEST message, the MCPTT client:
 - a) shall set the Call identifier IE with the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID;
 - d) shall set the Commencement mode IE with the stored commencement mode;
 - e) shall set the Call type IE with the stored current call type associated with the call type control state machine;
 - f) shall set the SDP offer IE with the stored offer SDP; and
 - g) may set the User location IE with stored user location if the stored current call type is "EMERGENCY PRIVATE CALL" associated with the call type control state machine.
- 4) shall send the PRIVATE CALL SETUP REQUEST message towards other MCPTT client according to rules and procedures as specified in subclause 11.2.1.1.1;
- 5) shall start timer TFP1 (private call request retransmission); and
- 6) shall remain in the "P2: waiting for call response" state.

[TS 24.379, clause 11.2.2.4.2.4]

In the "P2: waiting for call response" state, when timer TFP1 (private call request retransmission) expires and the value of the counter CFP1 (private call request retransmission) is equal to the upper limit and the stored commencement mode is "AUTOMATIC COMMENCEMENT MODE", the MCPTT client:

- 1) shall start timer TFP7 (waiting for any message with same call identifier); and
- 2) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.2.8]

When in the "P2: waiting for call response" state, upon receiving a PRIVATE CALL ACCEPT message response to PRIVATE CALL SETUP REQUEST message with the same call identifier, the MCPTT client:

- 1) shall store the SDP answer IE received in the PRIVATE CALL ACCEPT message as answer SDP;
- 2) shall generate a PRIVATE CALL ACCEPT ACK message as specified in subclause 15.1.11:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID.
- 3) shall send the PRIVATE CALL ACCEPT ACK message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 4) shall stop timer TFP1 (call setup retransmission), if running;
- 5) shall stop timer TFP2 (waiting for call response message), if running;
- 6) shall establish a media session based on the SDP body of the stored answer SDP;
- 7) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 8) shall start timer TFP5 (max duration); and
- 9) shall enter the "P4: part of ongoing call" state.

[TS 24.379, clause 11.2.2.4.5.7]

When in the "P1: ignoring same call id" state, upon expiry of timer TFP7 (waiting for any message with same call identifier) the MCPTT client:

- 1) shall clear the stored call identifier; and
- 2) shall enter the "P0: start-stop" state.

[TS 24.380, clause 7.1]

In off-network, floor control is performed using floor control messages among the MCPTT clients without a centralized floor arbitrator. When off-network, if a floor control session is active, the floor arbitrator and the floor participant are co-located in the MCPTT client (see 3GPP TS 23.179 [5]). During a floor control session the MCPTT client currently speaking serves as the temporary floor arbitrator. All other MCPTT clients in the call play the role of floor participant. When the floor arbitrator grants the floor to another MCPTT client, that new MCPTT client, when starts to send media, becomes the new floor arbitrator and the former (the MCPTT client which granted the floor) becomes a floor participant.

...

It is assumed that the MCPTT user presses the PTT for requesting talk permission and it keeps it pressed until the request is resolved. If queuing of floor requests is not supported, this request is either granted or rejected or no answer is received. If the request is granted the user is notified with talk permission tone (or equivalent) and the user continues to press the PTT until it finishes the talk burst. If the request is rejected or no answer is received the user is notified and releases the PTT button.

[TS 24.380, clause 7.2.3.2.2]

When an MCPTT call is established with session announcement including an explicit floor request, the originating floor participant:

1. shall create an instance of a floor participant state transition diagram for basic operation state machine;
2. shall send Floor Granted message towards other floor participants. The Floor Granted message:
 - a. shall include the granted priority in the Floor priority field;
 - b. shall include the MCPTT user's own MCPTT ID in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
3. shall set the stored SSRC of the current floor arbitrator to its own SSRC; and
4. shall enter 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.2]

Upon receiving encoded media from the user or if encoded media is already buffered the floor participant:

1. shall start timer T206 (Stop talking warning), if not running;
2. shall request the MCPTT client to start sending RTP media packets towards other MCPTT clients; and
3. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.4.2]

If the floor participant receives an indication from the MCPTT user that the MCPTT user wants to send media, the floor participant:

1. shall send the Floor Request message to other clients. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the User ID field; and

- c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall start timer T201 (Floor Request); and
4. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.5.4]

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, in a session where:

1. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "false"; or
2. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" but the F-bit in the Floor Indicator field is set to '0' (i.e. indicating that queuing of floor requests is not supported) or the Floor Indicator field is not included in the Floor Request message;

then the floor participant:

1. shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
2. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.5]

Upon receiving an indication from the MCPTT user to release permission to send RTP media, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall send a Floor Release message towards other floor participants, if no queued requests exist: The Floor Release message:
 - a. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - b. if the session is not initiated as a broadcast group call with the B-bit set to '1' (Broadcast group call), shall include a Floor Indicator field set to '0' (normal call);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the current arbitrator; and
6. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.4.3]

When a Floor Release message is received and if the SSRC in the Floor Release message matches with the stored SSRC of the current arbitrator or with the stored SSRC of the candidate arbitrator, the floor participant:

1. may provide floor idle notification to the MCPTT user.
2. shall request the MCPTT client to stop rendering received RTP media packets;
3. shall stop timer T203 (End of RTP media);

4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the candidate arbitrator;
6. shall clear the stored SSRC of the current arbitrator; and
7. shall enter 'O: silence' state;

[TS 24.380, clause 7.2.3.3.2]

If the floor participant receives an indication from the MCPTT user to send media, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the <User ID> value of the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall stop timer T230 (Inactivity);
4. shall start timer T201 (Floor Request); and
5. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.3.5]

The transition is used in private call only. When a Floor Request message is received, the floor participant:

1. shall send a Floor Granted message toward the other floor participant. The Floor Granted message:
 - a. shall include the MCPTT ID of the Floor Request message received in User ID value of the User ID field;
 - b. shall include the SSRC of the Floor Request message received in the SSRC of floor control server field;
 - c. shall include the max duration as configured in the MCPTT client in the OffNetwork/MaxDuration parameter in the <Duration> value of the Duration field; and
 - d. shall include the priority of the Floor Request message received in the <Floor Priority> value of the Floor Priority field;
2. shall stop timer T230 (Inactivity);
3. shall start timer T205 (Floor Granted); and
4. shall enter 'O: pending granted' state.

[TS 24.380, clause 7.2.3.7.2]

Upon receiving the RTP media and the SSRC of RTP media packet matches with the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to render the received RTP media packets;
2. shall stop timer T205 (Floor Granted), if running;
3. shall stop timer T233 (Pending user action), if running;
4. shall start timer T203 (End of RTP media); and
5. shall enter 'O: has no permission' state.

[TS 24.379, clause 11.2.3.4.5.1]

When in the "Q1: in-progress private call" state, upon an indication from MCPTT User to upgrade the call to emergency and the value of "`<x>/<x>/Common/PrivateCall/EmergencyCall/Authorised`" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true", the MCPTT client:

- 1) shall generate and store emergency offer SDP as defined in subclause 11.2.1.1.2;
- 2) shall update caller ID as own MCPTT user ID;
- 3) shall update callee ID as MCPTT user ID of the other user;
- 4) shall store current user location as user location;
- 5) shall set the stored current call type to "EMERGENCY PRIVATE CALL";
- 6) shall generate a PRIVATE CALL SETUP REQUEST message as specified in subclause 15.1.5. In the PRIVATE SETUP REQUEST message, the MCPTT client:
 - a) shall set the Call identifier IE with the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID;
 - d) shall set the Commencement mode IE as "AUTOMATIC COMMENCEMENT MODE";
 - e) shall set the Call type IE to the stored current call type;
 - f) shall set the SDP offer IE with emergency offer SDP; and
 - g) may set the User location IE with user location.
- 7) shall set the ProSe per-packet priority to the value corresponding to MCPTT off-network emergency private call as described in 3GPP TS 24.383 [45];
- 8) shall send the PRIVATE CALL SETUP REQUEST message towards other MCPTT client according to rules and procedures as specified in subclause 11.2.1.1.1;
- 9) shall initialize the counter CFP1 (private call request retransmission) with value set to 1;
- 10) shall start timer TFP1 (private call request retransmission); and
- 11) shall enter the "Q2: in-progress emergency private call" state.

[TS 24.379, clause 11.2.3.4.6.1]

When in the "Q2: in-progress emergency private call" state, upon an indication from:

- 1) the caller of the emergency private call; or

...

to cancel the emergency private call, the MCPTT client:

- 1) shall generate a PRIVATE CALL EMERGENCY CANCEL message as specified in subclause 15.1.12. In the PRIVATE CALL EMERGENCY CANCEL message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee.
- 2) shall send the PRIVATE CALL EMERGENCY CANCEL message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall stop TFP8 (implicit downgrade) timer;
- 4) shall initialize the counter CFP6 (emergency private call cancel retransmission) with the value set to 1;

- 5) shall start timer TFP6 (emergency private call cancel retransmission);
- 6) shall set the stored current call type to "PRIVATE CALL"; and
- 7) shall enter the "Q1: in-progress private call" state.

[TS 24.379, clause 11.2.3.4.6.3]

When in the "Q1: in-progress private call" state, upon receiving a PRIVATE CALL EMERGENCY CANCEL ACK message response to PRIVATE CALL EMERGENCY CANCEL message with the same "call identifier", the MCPTT client:

- 1) shall stop timer TFP6 (emergency private call cancel retransmission), if running;
- 2) shall establish a media session based on the SDP body of the stored answer SDP;
- 3) shall set the ProSe per-packet priority to the value corresponding to MCPTT off-network private call as described in 3GPP TS 24.383 [45]; and
- 4) shall remain in the "Q1: in-progress private call" state.

[TS 24.379, clause 11.2.2.4.5.1]

When in the "P4: part of ongoing call" state, upon an indication from MCPTT User to release a private call, the MCPTT client:

- 1) shall generate a PRIVATE CALL RELEASE message as specified in subclause 15.1.9. In the PRIVATE CALL RELEASE message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with stored callee ID.
- 2) shall send the PRIVATE CALL RELEASE message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall initialize the counter CFP3 (private call release retransmission) with the value set to 1;
- 4) shall start timer TFP3 (private call release retransmission); and
- 5) shall enter the "P3: waiting for release response" state.

[TS 24.379, clause 11.2.2.4.5.5]

When in the "P3: waiting for release response" state, upon receiving a PRIVATE CALL RELEASE ACK to PRIVATE CALL RELEASE message, the MCPTT client:

- 1) shall stop timer TFP3 (private call release retransmission), if running;
- 2) shall terminate the media session;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall release the call type control state machine; and
- 5) shall enter the "P1: ignoring same call id" state.

7.2.1.3 Test description

7.2.1.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)

- For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
 - GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.
- NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".
- SS-NW (MCPTT server) in the Preamble
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
 - The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is Switched OFF (state 1) according to TS 36.508 [24].

7.2.1.3.2

Test procedure sequence

Table 7.2.1.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----------|--|------------------|----------------------------|-----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). (NOTE 1) | - | - | - | - |
| 3 | Make the UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Automatic Commencement Mode, with Floor Control. (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| - | EXCEPTION: Steps 4-6 are repeated CFP1=3 times (CFP1 defined in 36.579-1 [2] Table 5.5.8.1-1) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a PRIVATE CALL SETUP REQUEST, Commencement mode set to AUTOMATIC COMMENCEMENT MODE, Call type set to Private Call? NOTE: It is expected that the UE - shall initialize the counter CFP1 (private call request retransmission) with the value set to 1 on the first transmission, and, increase it by 1 with each re-transmission. - shall start timer TFP1 (private call request retransmission) | --> | PRIVATE CALL SETUP REQUEST | 1,2 | P |
| 5 | Start TFP1 (private call request retransmission) 2000 milliseconds as defined in 36.579-1 [2] Table 5.5.8.1-1. | - | - | - | - |
| 6 | TFP1 expires. | - | - | - | - |
| 13 | Start TFP7 (waiting for any message with same call identifier) 6 sec (value chosen to facilitate the test sequence in steps 14-16) and defined in 36.579-1 [2] Table 5.5.8.1-1. NOTE: TFP7 is expected to be started after TFP1 expires and CFP1 is equal to the upper limit. NOTE: It is expected that the UE considers at this moment of time the Private call establishment attempt as failed | - | - | - | - |
| 14 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message, | <-- | PRIVATE CALL ACCEPT | - | - |
| - | EXCEPTION: Steps 15a1-15b1 depend on UE compliance; the "lower case letter" identifies a step sequence that takes place depending on UE behaviour. | - | - | - | - |
| 15a 1 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT ACK? | --> | PRIVATE CALL ACCEPT ACK | 2 | F |
| 15b 1 | Check: Does the TFP7 (waiting for any message with same call identifier) expire? | - | - | 2 | P |
| 16 | Void. | - | - | - | - |

| | | | | | |
|----|---|-----|----------------------------|---|---|
| - | EXCEPTION: UE releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the UE'. | - | - | - | - |
| 17 | Make the UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Automatic Commencement Mode, with Floor Control. (NOTE 1) | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 18 | Check: Does the UE (MCPTT client) send a PRIVATE CALL SETUP REQUEST, Commencement mode set to AUTOMATIC COMMENCEMENT MODE, Call type set to Private Call? | --> | PRIVATE CALL SETUP REQUEST | 1 | P |
| 19 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message, | <-- | PRIVATE CALL ACCEPT | - | - |
| 20 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT ACK? | --> | PRIVATE CALL ACCEPT ACK | 3 | P |
| 21 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE 1: Depending on UE implementation the PTT button may already been pressed in step 17. NOTE 2: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 22 | Check: Does the UE (MCPTT client) send Floor Granted message, Floor Indicator set to Normal call? | --> | Floor Granted | 4 | P |
| 23 | SS-UE1 (MCPTT Client) sends a Floor Request message | <-- | Floor Request | - | - |
| 24 | Check: Does the UE (MCPTT client) send Floor Deny message? | --> | Floor Deny | 4 | P |
| 25 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 26 | Check: Does the UE (MCPTT client) send Floor Release message? | --> | Floor Release | 4 | P |
| 27 | SS-UE1 (MCPTT Client) sends a Floor Request message | <-- | Floor Request | - | - |
| 28 | Check: Does the UE (MCPTT client) send Floor Granted message? | --> | Floor Granted | 4 | P |
| 29 | SS continuously sends RTP media until step 34 below. NOTE: The UE (Client) needs to receive RTP media because otherwise the sending of Floor Deny in step 32 will not be a valid behaviour. | - | - | - | - |
| 30 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 31 | Check: Does the UE (MCPTT client) send Floor Request message? | --> | Floor Request | 4 | P |
| 32 | SS-UE1 (MCPTT Client) sends a Floor Deny message. | <-- | Floor Deny | - | - |
| 33 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 34 | SS-UE1 (MCPTT Client) sends a Floor Release message. | <-- | Floor Release | - | - |

| | | | | | |
|----|---|-----|-----------------------------------|-----|---|
| 35 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 36 | Check: Does the UE (MCPTT client) send Floor Request message? | --> | Floor Request | 4 | P |
| 37 | SS-UE1 (MCPTT Client) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 38 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 39 | Check: Does the UE (MCPTT client) send Floor Release message? | --> | Floor Release | 4 | P |
| 40 | Make the UE (MCPTT User) request upgrade of the ongoing call to Emergency call. (NOTE 1) | - | - | - | - |
| 41 | Check: Does the UE (MCPTT client) send PRIVATE CALL SETUP REQUEST message, Call type set to EMERGENCY PRIVATE CALL? | --> | PRIVATE CALL SETUP REQUEST | 5 | P |
| 42 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT | - | - |
| 43 | Check: Does the UE (MCPTT client) send PRIVATE CALL ACCEPT ACK message? | --> | PRIVATE CALL ACCEPT ACK | 5 | P |
| 44 | Make the UE (MCPTT User) to press the PTT button requesting permission to talk. NOTE 1: Depending on UE implementation the PTT button may already been pressed in step 40. NOTE 2: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 45 | Check: Does the UE (MCPTT client) send Floor Request message? | --> | Floor Granted | 5,4 | P |
| 46 | Void | - | - | - | - |
| 47 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 48 | Check: Does the UE (MCPTT client) send Floor Release message? | --> | Floor Release | 5,4 | P |
| 49 | Make the UE (MCPTT User) request downgrade of the ongoing Emergency call. (NOTE 1) | - | - | - | - |
| 50 | Check: Does the UE (MCPTT client) send PRIVATE CALL EMERGENCY CANCEL message? | --> | PRIVATE CALL EMERGENCY CANCEL | 6 | P |
| 51 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL EMERGENCY CANCEL ACK message. | <-- | PRIVATE CALL EMERGENCY CANCEL ACK | - | - |
| 52 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 53 | Check: Does the UE (MCPTT client) send Floor Request message? | --> | Floor Request | 6,4 | P |
| 54 | SS-UE1 (MCPTT Client) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 55 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 56 | Check: Does the UE (MCPTT client) send Floor Release message? | --> | Floor Release | 6,4 | P |
| 57 | Make the UE (MCPTT User) request termination of the MCPTT private call. (NOTE 1) | - | - | - | - |
| 58 | Check: Does the UE (MCPTT client) send PRIVATE CALL RELEASE message? | --> | PRIVATE CALL RELEASE | 7 | P |
| 59 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message. | <-- | PRIVATE CALL RELEASE ACK | - | - |

| | | | | | |
|--|--|---|---|---|---|
| - | EXCEPTION: UE releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the UE'. | - | - | - | - |
| NOTE 1: This is expected to be done via a suitable implementation dependent MMI. | | | | | |

7.2.1.3.3 Specific message contents

Table 7.2.1.3.3-1: PRIVATE CALL SETUP REQUEST (Step 41, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.8.1-1. | | | |
|---|--------------------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | '00000110'B | EMERGENCY PRIVATE CALL | |
| User location | Nor present or Any value | | |

Table 7.2.1.3.3-2: Floor Granted (Step 28, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-2A: Floor Granted (Step 22, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|---------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | UE (MCPTT client) SSRC | | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-3: Floor Granted (Steps 37, 54, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.1.3.3-4: Floor Request (Steps 23, 27, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.1.3.3-5: Floor Request (Steps 31, 36, 53, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-6: Floor Deny (Step 24, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-7: Floor Deny (Step 32, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.1.3.3-8: Floor Release (Steps 26, 39, 56, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-9: Floor Release (Step 34, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.1.3.3-10: Floor Request (Step 45, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

Table 7.2.1.3.3-11: Floor Granted (Step 46, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010100 0000000 | Bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.2.1.3.3-12: Floor Release (Step 48, Table 7.2.1.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

7.2.2 Off-network / Private Call / On-demand / Automatic Commencement Mode / No Response to Private Call Setup Accept / Private call setup success / With Floor Control / Upgrade to Emergency Call / Cancellation of Emergency on User request / Client Terminated (CT)

7.2.2.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private and private emergency calls with automatic commencement, and, the UE is in an off-network environment }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT private call, on-demand Automatic Commencement Mode }
  then { UE (MCPTT Client) sends a PRIVATE CALL ACCEPT message accepting the establishment of a private call on-demand Automatic Commencement Mode }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private and private emergency calls with automatic commencement, and, the UE is in an off-network environment, and, UE (MCPTT Client) having sent a PRIVATE CALL ACCEPT message accepting the establishment of a private call }
ensure that {
  when { the UE (MCPTT Client) does not receive response from the calling Client until the timer TFP4 (private call accept retransmission) expires }
  then { UE (MCPTT Client) retransmits the PRIVATE CALL ACCEPT message if the counter CFP4 (private call accept retransmission) has not reached its max value and increments the counter CFP4 with one, and, stops re-transmitting if the counter CFP4 (private call accept retransmission) has reached its max value }
}
```

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to receive private and private emergency calls with automatic commencement, and, the UE is in an off-network environment, and, UE (MCPTT Client) having sent a PRIVATE CALL ACCEPT message accepting the establishment of a private call }
ensure that {
  when { the UE (MCPTT Client) receives a PRIVATE CALL ACCEPT ACK message }
  then { UE (MCPTT Client) considers the private call as established }
}
```

(4)

```
with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the MCPTT User engages in communication with the inviting MCPTT User }
  then { UE (MCPTT Client) respects the floor control procedures in off-network environment imposed by Client having the floor (Floor request/grant/release/deny) }
}
```

(5)

```
with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the UE (MCPTT Client) receives a request from the remote Client to upgrade the ongoing MCPTT private call to an MCPTT emergency private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL ACCEPT message accepting the upgrade, and, after receiving a PRIVATE CALL ACCEPT ACK message, UE (MCPTT Client) considers the emergency private call as established }
}
```

(6)

```
with { UE (MCPTT Client) having established an MCPTT private call, in off-network environment, and, having successfully upgraded it to an MCPTT Private Emergency call }
```

```

ensure that {
  when { the UE (MCPTT Client) receives a request from the remote Client to downgrade the ongoing
  MCPTT private emergency call to a normal MCPTT private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL EMERGENCY CANCEL ACK message, and, considers the
  call downgraded to a Private normal call }
}

```

(7)

```

with { UE (MCPTT Client) having established an MCPTT private call in off-network environment }
ensure that {
  when { the MCPTT User receives a request from the remote Client to release the ongoing MCPTT
  private call }
  then { UE (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message and leaves the MCPTT session }
}

```

7.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.2.1.1.1, 11.2.1.1.2, 11.2.2.4.3.2, 11.2.2.4.3.3, 11.2.2.4.3.5, 11.2.2.4.3.4, TS 24.380 clauses 7.1, 7.2.3.4.2, 7.2.3.5.4, 7.2.3.5.5, 7.2.3.4.3, 7.2.3.3.2, 7.2.3.3.5, 7.2.3.5.2, 7.2.3.7.2, 11.2.3.4.5.6, 11.2.3.4.6.5, 11.2.2.4.5.4. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.2.1.1.1]

In order to participate in a private call, the MCPTT client:

- 1) shall send the MONP message as a UDP message to the local IP address of the MCPTT user, on UDP port TBD, with an IP time-to-live set to 255; and

Editor's note [CT1#95, C1-160392]: Port number for the message is FFS.

- 2) shall treat UDP messages received on the port TBD as received MONP messages.

NOTE: An MCPTT client that supports IPv6 is supposed to listen to the IPv6 addresses.

[TS 24.379, clause 11.2.1.1.2]

For an off-network MCPTT session, only MCPTT speech is used.

One off-network MCPTT session includes one media-floor control entity.

The MCPTT client shall generate an SDP body for a private call in accordance with rules and procedures of IETF RFC 4566 [12] and IETF RFC 3264 [44].

The MCPTT client:

- 1) shall include in the session-level section:
 - a) the "o=" field with the <username> portion set to a dash;
 - b) the "s=" field with the <session name> portion set to a dash; and
 - c) the "c=" field with the <nettype> portion set to "IN", the <addrtype> portion set to the IP version of the unicast IP address of the MCPTT client and the <connection-address> portion set to the unicast IP address of the MCPTT client;
- 2) shall include the media-level section for MCPTT speech consisting of:
 - a) the "m=" field with the <media> portion set to "audio", the <port> portion set to a port number for MCPTT speech of the MCPTT group, the <proto> field set to "RTP/AVP" and <fmt> portion set indicating RTP payload type numbers;
 - b) the "i=" field with the <session description> portion set to "speech";
 - c) the "a=fmtp:" attribute(s), the "a=rtpmap:" attribute(s) or both, indicating the codec(s) and media parameters of the MCPTT speech; and

- d) the "a=rtcp:" attribute indicating port number to be used for RTCP at the MCPTT client selected according to the rules and procedures of IETF RFC 3605 [13], if the media steam uses other than the default IP address;
- 3) shall include the media-level section for media-floor control entity consisting of:
- a) an "m=" line, with the <media> portion set to "application", the <port> portion set to a port number for media-floor control entity of the MCPTT group, the <proto> field set to "udp" and <fmt> portion set to "MCPTT"; and
 - b) the "a=fmtp:MCPTT" attribute indicating the parameters of the media-floor control entity as specified 3GPP TS 24.380 [5]; and
- 4) shall include the MIKEY-SAKKE I_MESSAGE, if generated by the MCPTT client, in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 11.2.2.4.3.2]

When in the "P0: start-stop" or "P1: ignoring same call id" state, upon receiving a PRIVATE CALL SETUP REQUEST message with Commencement mode IE set to "AUTOMATIC COMMENCEMENT MODE" and Call identifier IE different than stored call identifier and media session declared in SDP body of PRIVATE CALL SETUP REQUEST message can be established, the MCPTT client:

- 1) shall store the Call identifier IE in the received message as call identifier;
- 2) shall create the call type control state machine as described in subclause 11.2.3.2;
- 3) shall store the MCPTT user ID of the caller IE in the received PRIVATE CALL SETUP REQUEST message as caller ID;
- 4) shall store own MCPTT user ID as callee ID;
- 5) if the SDP offer contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:
 - a) shall extract the MCPTT ID of the originating MCPTT user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
 - ...
 - e) if the validation of the signature was successful:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46];
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];
 - iii) shall generate and store answer SDP based on received SDP offer IE in PRIVATE CALL SETUP REQUEST message, as defined in subclause 11.2.1.1.2;
 - iv) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7. In the PRIVATE CALL ACCEPT message, the MCPTT client:
 - A) shall set the Call identifier IE to the stored call identifier; and
 - B) shall set the MCPTT user ID of the caller IE with stored caller ID.
 - C) shall set the MCPTT user ID of the callee IE with stored callee ID; and
 - D) shall set the SDP answer IE with the stored answer SDP;
 - v) shall send PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;

- vi) shall establish a media session based on the SDP body of the stored answer SDP;
- vii) shall initialize the counter CFP4 with value set to 1;
- viii) shall start timer TFP4 (private call accept retransmission); and
- ix) shall enter the "P5: pending" state; and

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

- 6) if the SDP offer does not contain an "a=key-mgmt" attribute, the MCPTT client:
- a) shall generate and store answer SDP based on received SDP offer IE in PRIVATE CALL SETUP REQUEST message, as defined in subclause 11.2.1.1.2;
 - b) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7:
 - i) shall set the Call identifier IE to the stored call identifier;
 - ii) shall set the MCPTT user ID of the caller IE with stored caller ID.
 - iii) shall set the MCPTT user ID of the callee IE with stored callee ID; and
 - iv) shall set the SDP answer IE with the stored answer SDP;
 - c) shall send PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - d) shall establish a media session based on the SDP body of the stored answer SDP;
 - e) shall initialize the counter CFP4 with value set to 1;
 - f) shall start timer TFP4 (private call accept retransmission); and
 - g) shall enter the "P5: pending" state.

[TS 24.379, clause 11.2.2.4.3.3]

When in the "P5: pending" state, upon expiry of timer TFP4 (private call accept retransmission), the MCPTT client:

- 1) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7. In the PRIVATE CALL ACCEPT message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID; and
 - d) shall set the SDP answer IE with the stored answer SDP;
- 2) shall send PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall increment the value of the counter CFP4 (private call accept retransmission) by 1;
- 4) shall start timer TFP4 (private call accept retransmission); and
- 5) shall remain in the "P5: pending" state.

[TS 24.379, clause 11.2.2.4.3.5]

In the "P5: pending" state, when timer TFP4 (private call accept retransmission) expires and the value of the counter CFP4 (private call accept retransmission) is equal to the upper limit, the MCPTT client:

- 1) shall start timer TFP7 (waiting for any message with same call identifier);

- 2) shall release the call type control state machine; and
- 3) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.3.4]

When in the "P5: pending" state, upon receiving a PRIVATE CALL ACCEPT ACK message or RTP media from originating user, the MCPTT client:

- 1) shall stop timer TFP4(private call accept retransmission);
- 2) shall start floor control as terminating MCPTT client as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 3) shall start timer TFP5 (max duration); and
- 4) shall enter the "P4: part of ongoing call" state.

[TS 24.379, clause 11.2.2.4.5.7]

When in the "P1: ignoring same call id" state, upon expiry of timer TFP7 (waiting for any message with same call identifier) the MCPTT client:

- 1) shall clear the stored call identifier; and
- 2) shall enter the "P0: start-stop" state.

[TS 24.380, clause 7.1]

In off-network, floor control is performed using floor control messages among the MCPTT clients without a centralized floor arbitrator. When off-network, if a floor control session is active, the floor arbitrator and the floor participant are co-located in the MCPTT client (see 3GPP TS 23.179 [5]). During a floor control session the MCPTT client currently speaking serves as the temporary floor arbitrator. All other MCPTT clients in the call play the role of floor participant. When the floor arbitrator grants the floor to another MCPTT client, that new MCPTT client, when starts to send media, becomes the new floor arbitrator and the former (the MCPTT client which granted the floor) becomes a floor participant.

...

It is assumed that the MCPTT user presses the PTT for requesting talk permission and it keeps it pressed until the request is resolved. If queuing of floor requests is not supported, this request is either granted or rejected or no answer is received. If the request is granted the user is notified with talk permission tone (or equivalent) and the user continues to press the PTT until it finishes the talk burst. If the request is rejected or no answer is received the user is notified and releases the PTT button.

[TS 24.380, clause 7.2.3.4.2]

If the floor participant receives an indication from the MCPTT user that the MCPTT user wants to send media, the floor participant:

1. shall send the Floor Request message to other clients. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall start timer T201 (Floor Request); and
4. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.5.4]

Upon receiving a Floor Request message which is not pre-emptive as determined by subclause 4.1.1.5, in a session where:

1. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "false"; or
2. the value of "/<x>/<x>/OffNetwork/QueueUsage" leaf node present in the group configuration as specified in 3GPP TS 24.383 [4] is set to "true" but the F-bit in the Floor Indicator field is set to '0' (i.e. indicating that queuing of floor requests is not supported) or the Floor Indicator field is not included in the Floor Request message;

then the floor participant:

1. shall send the Floor Deny message. The Floor Deny message:
 - a. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);
 - b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and
 - c. shall include the User ID field received in the Floor Request message; and
2. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.5.5]

Upon receiving an indication from the MCPTT user to release permission to send RTP media, the floor participant:

1. shall stop timer T206 (Stop talking warning), if running;
2. shall stop timer T207 (Stop talking), if running;
3. shall send a Floor Release message towards other floor participants, if no queued requests exist: The Floor Release message:
 - a. shall include the MCPTT ID of the MCPTT user in the User ID field; and
 - b. if the session is not initiated as a broadcast group call with the B-bit set to '1' (Broadcast group call), shall include a Floor Indicator field set to '0' (normal call);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the current arbitrator; and
6. shall enter 'O: silence' state.

[TS 24.380, clause 7.2.3.4.3]

When a Floor Release message is received and if the SSRC in the Floor Release message matches with the stored SSRC of the current arbitrator or with the stored SSRC of the candidate arbitrator, the floor participant:

1. may provide floor idle notification to the MCPTT user.
2. shall request the MCPTT client to stop rendering received RTP media packets;
3. shall stop timer T203 (End of RTP media);
4. shall start timer T230 (Inactivity);
5. shall clear the stored SSRC of the candidate arbitrator;
6. shall clear the stored SSRC of the current arbitrator; and
7. shall enter 'O: silence' state;

[TS 24.380, clause 7.2.3.3.2]

If the floor participant receives an indication from the MCPTT user to send media, the floor participant:

1. shall send the Floor Request message to other floor participants. The Floor Request message:
 - a. if a priority different than the default floor priority is required, shall include the Floor Priority field with the requested priority in the <Floor Priority> element;
 - b. shall include the MCPTT ID of the MCPTT user in the <User ID> value of the User ID field; and
 - c. if the floor request is a broadcast group call, system call, emergency call or an imminent peril call, shall include a Floor Indicator field indicating the relevant call types;
2. shall initialize the counter C201 (Floor request) with value set to 1;
3. shall stop timer T230 (Inactivity);
4. shall start timer T201 (Floor Request); and
5. shall enter 'O: pending request' state.

[TS 24.380, clause 7.2.3.3.5]

The transition is used in private call only. When a Floor Request message is received, the floor participant:

1. shall send a Floor Granted message toward the other floor participant. The Floor Granted message:
 - a. shall include the MCPTT ID of the Floor Request message received in User ID value of the User ID field;
 - b. shall include the SSRC of the Floor Request message received in the SSRC of floor control server field;
 - c. shall include the max duration as configured in the MCPTT client in the OffNetwork/MaxDuration parameter in the <Duration> value of the Duration field; and
 - d. shall include the priority of the Floor Request message received in the <Floor Priority> value of the Floor Priority field;
2. shall stop timer T230 (Inactivity);
3. shall start timer T205 (Floor Granted); and
4. shall enter 'O: pending granted' state.

[TS 24.380, clause 7.2.3.5.2]

Upon receiving encoded media from the user or if encoded media is already buffered the floor participant:

1. shall start timer T206 (Stop talking warning), if not running;
2. shall request the MCPTT client to start sending RTP media packets towards other MCPTT clients; and
3. shall remain in 'O: has permission' state.

[TS 24.380, clause 7.2.3.7.2]

Upon receiving the RTP media and the SSRC of RTP media packet matches with the stored SSRC of current arbitrator, the floor participant:

1. shall request the MCPTT client to render the received RTP media packets;
2. shall stop timer T205 (Floor Granted), if running;
3. shall stop timer T233 (Pending user action), if running;
4. shall start timer T203 (End of RTP media); and
5. shall enter 'O: has no permission' state.

[TS 24.379, clause 11.2.3.4.5.6]

When in the "Q1: in-progress private call" state or "Q2: in-progress emergency private call" state, upon receiving a PRIVATE CALL SETUP REQUEST message with the Call identifier IE same as the stored call identifier of the call, the Call type IE set as "EMERGENCY PRIVATE CALL", the MCPTT client:

- 1) if the media session declared in SDP body of PRIVATE CALL SETUP REQUEST message can be established:
 - a) shall generate and store emergency answer SDP based on received SDP offer IE in PRIVATE CALL SETUP REQUEST message, as defined in subclause 11.2.1.1.2;
 - b) shall update the caller ID with the MCPTT user ID of the caller IE as received in the PRIVATE CALL SETUP REQUEST message;
 - c) shall update the callee ID with own MCPTT user ID;
 - d) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7:
 - i) shall set the Call identifier IE to the stored call identifier;
 - ii) shall set the MCPTT user ID of the callee IE with stored callee ID;
 - iii) shall set the MCPTT user ID of the caller IE with stored caller ID; and
 - iv) shall set the SDP answer IE with the stored emergency answer SDP;
 - e) shall set the ProSe per-packet priority to the value corresponding to MCPTT off-network emergency private call as described in 3GPP TS 24.383 [45];
 - f) shall start TFP8 (implicit downgrade) timer;
 - g) shall send PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - h) shall set the stored current call type to "EMERGENCY PRIVATE CALL"; and
 - i) shall enter the "Q2: in-progress emergency private call" state;

[TS 24.379, clause 11.2.3.4.6.5]

When in the "Q1: in-progress private call" state or "Q2: in-progress emergency private call" state, upon receiving a PRIVATE CALL EMERGENCY CANCEL message with the same "call identifier" IE, the MCPTT client:

- 1) shall generate a PRIVATE CALL EMERGENCY CANCEL ACK as specified in subclause 15.1.13:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the callee IE with own MCPTT user ID; and
 - c) shall set the MCPTT user ID of the caller IE with MCPTT user ID of the caller IE in received message;
- 2) shall send PRIVATE CALL EMERGENCY CANCEL ACK message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall stop TFP8 (implicit downgrade) timer;
- 4) shall establish a media session based on the SDP body of the stored answer SDP;
- 5) shall set the ProSe per-packet priority to the value corresponding to MCPTT off-network private call as described in 3GPP TS 24.383 [45]; and
- 6) shall enter the "Q1: in-progress private call" state and set the stored current call type to "PRIVATE CALL", if current state is the "Q2: in-progress emergency private call" state.

[TS 24.379, clause 11.2.2.4.5.4]

When in the "P4: part of ongoing call" state, upon receiving a PRIVATE CALL RELEASE message, the MCPTT client:

- 1) shall generate a PRIVATE CALL RELEASE ACK message as specified in subclause 15.1.10;

- a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID.
- 2) shall send the PRIVATE CALL RELEASE ACK message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - 3) shall terminate the media session for private call;
 - 4) shall start timer TFP7 (waiting for any message with same call identifier);
 - 5) shall release the call type control state machine; and
 - 6) shall enter the "P1: ignoring same call id" state.

7.2.2.3 Test description

7.2.2.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server) in the Preamble
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
 - The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.

- The UE is Switched OFF (state 1) according to TS 36.508 [24].

7.2.2.3.2

Test procedure sequence

Table 7.2.2.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|-------|---|------------------|----------------------------|-----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 3 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to AUTOMATIC COMMENCEMENT MODE, Call type set to Private Call. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| - | EXCEPTION: Steps 4-6 are repeated CFP4=2 times (CFP4 defined in 36.579-1 [2] Table 5.5.8.1-1) | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT? NOTE: It is expected that the UE - shall initialize the counter CFP4 (private call accept retransmission) with value set to 1 on the first transmission, and, increase it by 1 with each re-transmission - shall start timer TFP4 (private call accept retransmission). | --> | PRIVATE CALL ACCEPT | 1,2 | P |
| 5 | Start TFP4 (private call accept retransmission) 50 milliseconds as defined in 36.579-1 [2] Table 5.5.8.1-1. | - | - | - | - |
| 6 | TFP4 expires. | - | - | - | - |
| 10-12 | Void | - | - | - | - |
| 13 | Start TFP7 (waiting for any message with same call identifier) 6 sec (value chosen to facilitate the test sequence in steps 14-17) and defined in 36.579-1 [2] Table 5.5.8.1-1. NOTE: TFP7 is expected to be started after TFP4 expires and CFP4 is equal to the upper limit. NOTE: It is expected that the UE considers at this moment of time the Private call establishment attempt as failed. | - | - | - | - |
| 14 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT ACK | - | - |
| 15 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| - | EXCEPTION: Steps 16a1-16b1 depend on UE compliance; the "lower case letter" identifies a step sequence that take place depending on UE behaviour. | - | - | - | - |
| 16a1 | Check: Does the UE (MCPTT client) send a Floor Request message | --> | Floor Request | 2 | F |

| | | | | | |
|----------|---|-----|----------------------------|-----|---|
| 16b 1 | Check: Does the TFP7 (waiting for any message with same call identifier) expire? | - | - | 2 | P |
| 17 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |
| 18 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 19 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 20 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT? | --> | PRIVATE CALL ACCEPT | 1 | P |
| 21 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT ACK. | <-- | PRIVATE CALL ACCEPT ACK | - | - |
| 22 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 23 | SS-UE1 (MCPTT Client) continuously sends RTP media until step 28 below. NOTE: The UE (Client) needs to receive RTP media because otherwise the sending of Floor Deny below will not be a valid behaviour. | - | - | - | - |
| 24 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 25 | Check: Does the UE (MCPTT client) send a Floor Request message? | --> | Floor Request | 3,4 | P |
| 26 | SS-UE1 (MCPTT Client) sends Floor Deny message. | <-- | Floor Deny | - | - |
| 27 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 28 | SS-UE1 (MCPTT Client) sends Floor Release message. | <-- | Floor Release | - | - |
| 29 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 30 | Check: Does the UE (MCPTT client) send a Floor Request message? | --> | Floor Request | 4 | P |
| 31 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 32 | SS-UE1 (MCPTT Client) sends a Floor Request message. | <-- | Floor Request | - | - |
| 33 | Check: Does the UE (MCPTT client) send Floor Deny message? | --> | Floor Deny | 4 | P |
| 34 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 35 | Check: Does the UE (MCPTT client) send a Floor Release message? | --> | Floor Release | 4 | P |
| 36 | SS-UE1 (MCPTT Client) sends a Floor Request message. | <-- | Floor Request | - | - |
| 37 | Check: Does the UE (MCPTT client) send Floor Granted message? | --> | Floor Granted | 4 | P |

| | | | | | |
|----|--|-----|-----------------------------------|-----|---|
| 38 | SS-UE1 (MCPTT Client) sends Floor Release message. | <-- | Floor Release | - | - |
| 39 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST message with Call type IE, call type = "EMERGENCY PRIVATE CALL. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 40 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT? | --> | PRIVATE CALL ACCEPT | 5 | P |
| 41 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT ACK. | <-- | PRIVATE CALL ACCEPT ACK | - | - |
| 42 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 43 | SS-UE1 (MCPTT Client) sends Floor Release message. | <-- | Floor Release | - | - |
| 44 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 45 | Check: Does the UE (MCPTT client) send a Floor Request message? | --> | Floor Request | 5,4 | P |
| 46 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 47 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 48 | Check: Does the UE (MCPTT client) send a Floor Release message? | --> | Floor Release | 5,4 | P |
| 49 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL EMERGENCY CANCEL message. | <-- | PRIVATE CALL EMERGENCY CANCEL | - | - |
| 50 | Check: Does the UE (MCPTT client) send a PRIVATE CALL EMERGENCY CANCEL ACK message? | --> | PRIVATE CALL EMERGENCY CANCEL ACK | 6 | P |
| 51 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 52 | SS-UE1 (MCPTT Client) sends Floor Release message. | <-- | Floor Release | - | - |
| 53 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 54 | Check: Does the UE (MCPTT client) send a Floor Request message? | --> | Floor Request | 6,4 | P |
| 55 | SS-UE1 (MCPTT Client) sends Floor Granted message. | <-- | Floor Granted | - | - |
| 56 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 57 | Check: Does the UE (MCPTT client) send a Floor Release message? | --> | Floor Release | 6,4 | P |
| 58 | SS-UE1 (MCPTT Client) sends PRIVATE CALL RELEASE message. | <-- | PRIVATE CALL RELEASE | - | - |
| 59 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RELEASE ACK message | --> | PRIVATE CALL RELEASE ACK | 7 | P |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |

7.2.2.3.3 Specific message contents

Table 7.2.2.3.3-1: PRIVATE CALL SETUP REQUEST (Step 39, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.8.2-1. | | | |
|---|--------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | '00000110'B | EMERGENCY PRIVATE CALL | |

Table 7.2.2.3.3-2: Floor Granted (Step 37, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | SS-UE1 (MCPTT Client) SSRC | | |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-3: Floor Granted (Steps 22, 51, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | SS-UE1 (MCPTT Client) SSRC | | |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-3A: Floor Granted (Steps 31, 55, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-4: Floor Request (Steps 32, 36, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-5: Floor Request (Steps 25, 30, 54, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-6: Floor Deny (Step 33, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-7: Floor Deny (Step 26, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.4-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-8: Floor Release (Steps 35, 57, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-9: Floor Release (Steps 28, 38, 52, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-10: Floor Request (Step 45, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-11: Floor Granted (Step 42, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|----------------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | SS-UE1 (MCPTT Client) SSRC | | |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '00010100 0000000 | Bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-11A: Floor Granted (Step 46, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010100 0000000 | Bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

Table 7.2.2.3.3-12: Floor Release (Step 48, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

Table 7.2.2.3.3-13: Floor Release (Step 43, Table 7.2.2.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '00010100 0000000 | Bit D=1 (Emergency call) bit F=1 (Queueing supported) | |

7.2.3 Off-network / Private Call / On-demand / Automatic Commencement Mode / Upgrade to Emergency Call Reject / Downgrade from Emergency Call Failure / Client Originated (CO)

7.2.3.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to initiate/cancel private and private emergency calls with automatic commencement in off-network environment, and, the UE is in an off-network environment, and, upon User request the UE (MCPTT Client) has requested upgrade of an established Private Call to an Emergency Private call }
ensure that {
  when { the called Client rejects the upgrade requests }
  then { UE (MCPTT Client) continues with the established Private call }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to initiate/cancel private and private emergency calls with automatic commencement in off-network environment, and, the UE is in an off-network environment, and, upon User request the UE (MCPTT Client) has requested downgrade of an Emergency Private call to a Private call }
ensure that {
  when { the UE (MCPTT Client) does not receive response to the request until the timer TFP6 (emergency private call cancel retransmission) expires }
```

```
then { UE (MCPTT Client) retransmits the PRIVATE CALL EMERGENCY CANCEL message requesting the
downgrade of the emergency private call if the counter CFP6 (emergency private call cancel
retransmission) has not reached its max value and increments the counter CFP6 with one, and, stops
re-transmitting if the counter CFP1 (emergency private call cancel retransmission) has reached its
max value and considers the private call as terminated }
}
```

7.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.2.3.4.5.4, 11.2.3.4.6.1, 11.2.3.4.6.2, 11.2.3.4.6.4, 11.2.2.4.5.9, 11.2.2.4.5.9. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.2.3.4.5.4]

When in the "Q2: in-progress emergency private call" state, upon receiving a PRIVATE CALL REJECT message in response to PRIVATE CALL SETUP REQUEST message with Call identifier IE same as stored call identifier, the MCPTT client:

- 1) shall stop timer TFP1 (call setup retransmission), if running;
- 2) shall set the ProSe per-packet priority to the value corresponding to the MCPTT off-network private call as described in 3GPP TS 24.383 [45];
- 3) shall set the stored current call type to "PRIVATE CALL"; and
- 4) shall enter the "Q1: in-progress private call" state.

[TS 24.379, clause 11.2.3.4.6.1]

When in the "Q2: in-progress emergency private call" state, upon an indication from:

- 1) the caller of the emergency private call; or

...

to cancel the emergency private call, the MCPTT client:

- 1) shall generate a PRIVATE CALL EMERGENCY CANCEL message as specified in subclause 15.1.12. In the PRIVATE CALL EMERGENCY CANCEL message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee.
- 2) shall send the PRIVATE CALL EMERGENCY CANCEL message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall stop TFP8 (implicit downgrade) timer;
- 4) shall initialize the counter CFP6 (emergency private call cancel retransmission) with the value set to 1;
- 5) shall start timer TFP6 (emergency private call cancel retransmission);
- 6) shall set the stored current call type to "PRIVATE CALL"; and
- 7) shall enter the "Q1: in-progress private call" state.

[TS 24.379, clause 11.2.3.4.6.2]

When in the "Q1: in-progress private call" state, upon expiry of timer TFP6 (emergency private call cancel retransmission), the MCPTT client:

- 1) shall generate a PRIVATE CALL EMERGENCY CANCEL message as specified in subclause 15.1.12. In the PRIVATE CALL EMERGENCY CANCEL message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;

- b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with store callee ID.
- 2) shall send the PRIVATE CALL EMERGENCY CANCEL message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - 3) shall increment the value of the timer CFP6 (emergency private call cancel retransmission) by 1;
 - 4) shall start timer TFP6 (emergency private call cancel retransmission); and
 - 5) shall remain in the "Q1: in-progress private call" state.

[TS 24.379, clause 11.2.3.4.6.4]

In the "Q1: in-progress private call" state, when timer TFP6 (emergency private call cancel retransmission) expires and the value of the counter CFP6 (emergency private call cancel retransmission) is equal to the upper limit, the MCPTT client:

- 1) shall release the stored current call type;
- 2) shall release the stored Prose per-packet priority; and
- 3) shall enter "Q0: waiting for the call to be established".

[TS 24.379, clause 11.2.2.4.5.9]

In the "P4: part of ongoing call" state, when timer TFP6 (emergency private call cancel retransmission) expires and the value of the counter CFP6 (emergency private call cancel retransmission) is equal to the upper limit, the MCPTT client:

- 1) shall start timer TFP7 (waiting for any message with same call identifier);
- 2) shall release the call type control state machine; and
- 3) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.5.9]

When in the "P1: ignoring same call id" state, upon expiry of timer TFP7 (waiting for any message with same call identifier) the MCPTT client:

- 1) shall clear the stored call identifier; and
- 2) shall enter the "P0: start-stop" state.

7.2.3.3 Test description

7.2.3.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server) in the Preamble

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is Switched OFF (state 1) according to TS 36.508 [24].

7.2.3.3.2

Test procedure sequence

Table 7.2.3.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|----------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 3 | Make the UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Automatic Commencement Mode, with Floor Control. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | The UE (MCPTT client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to AUTOMATIC COMMENCEMENT MODE, Call type set to Private Call. | --> | PRIVATE CALL SETUP REQUEST | - | - |
| 5 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT | - | - |
| 6 | The UE (MCPTT client) send a PRIVATE CALL ACCEPT ACK. | --> | PRIVATE CALL ACCEPT ACK | - | - |
| 7 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE 1: Depending on UE implementation the PTT button may already been pressed in step 3. NOTE 2: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 8 | The UE (MCPTT client) sends Floor Granted message. | --> | Floor Granted | - | - |
| 9 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 10 | The UE (MCPTT client) send Floor Release message. | --> | Floor Release | - | - |
| 11 | Make the MCPTT UE (MCPTT User) request upgrade of the ongoing call to Emergency call. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 12 | The UE (MCPTT client) sends PRIVATE CALL SETUP REQUEST message, Call type set to EMERGENCY PRIVATE CALL. | --> | PRIVATE CALL SETUP REQUEST | 1 | - |
| 13 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL REJECT message. | <-- | PRIVATE CALL REJECT | - | - |
| 14 | Make the UE (MCPTT User) to press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 15 | Check: Does the UE (MCPTT client) send Floor Request message, Floor Indicator set to Normal call? NOTE: The UE continues operating in the normal Private call. | --> | Floor Request | 1 | P |

| | | | | | |
|----|---|-----|-----------------------------------|---|---|
| 16 | SS-UE1 (MCPTT Client) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 17 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 18 | The UE (MCPTT client) send Floor Release message. | --> | Floor Release | - | - |
| 19 | Make the MCPTT UE (MCPTT User) request upgrade of the ongoing call to Emergency call. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 20 | The UE (MCPTT client) send PRIVATE CALL SETUP REQUEST message, Call type set to EMERGENCY PRIVATE CALL. | --> | PRIVATE CALL SETUP REQUEST | - | - |
| 21 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT | - | - |
| 22 | The UE (MCPTT client) send PRIVATE CALL ACCEPT ACK message. | --> | PRIVATE CALL ACCEPT ACK | - | - |
| 23 | Make the UE (MCPTT User) to press the PTT button requesting permission to talk. NOTE 1: Depending on UE implementation the PTT button may already been pressed in step 19. NOTE 2: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |
| 24 | The UE (MCPTT client) send Floor Granted message, Floor Indicator set to Emergency call. | --> | Floor Granted | - | - |
| 25 | Void. | - | - | - | - |
| 26 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 27 | The UE (MCPTT client) send Floor Release message. | --> | Floor Release | - | - |
| 28 | Make the UE (MCPTT User) request downgrade of the ongoing Emergency call. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| - | EXCEPTION: Steps 29-31 are repeated CFP6=3 times. | - | - | - | - |
| 29 | Check: Does the UE (MCPTT client) send PRIVATE CALL EMERGENCY CANCEL message? NOTE: It is expected that the UE - shall initialize the counter CFP6 (emergency private call cancel retransmission) with the value set to 1 - shall start timer TFP6 (emergency private call cancel retransmission) | --> | PRIVATE CALL EMERGENCY CANCEL | 2 | P |
| 30 | Start TFP6 (private call request retransmission) 40 milliseconds. | - | - | - | - |
| 31 | TFP6 expires. NOTE: It is expected that the UE considers at this moment of time the Private call being terminated. | - | - | - | - |
| 38 | Start TFP7 (waiting for any message with same call identifier) 6 sec (value chosen to facilitate the test sequence in steps 39-43). NOTE 1: TFP7 is expected to be started after TFP6 expires and CFP6 is equal to the upper limit. NOTE 2: Step numbering to reflect that steps 29-31 are repeated CFP6=3 times. | - | - | - | - |
| 39 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL EMERGENCY CANCEL ACK message | <-- | PRIVATE CALL EMERGENCY CANCEL ACK | - | - |
| 40 | Make the UE (MCPTT User) to press the PTT button requesting permission to talk. NOTE: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |

| | | | | | |
|----|--|-----|---------------|---|---|
| 41 | Check: Does the UE (MCPTT client) send Floor Request message in the next 2/3 TFP7 sec? | --> | Floor Request | 2 | F |
| 42 | Make the UE (MCPTT User) to release the PTT button. | - | - | - | - |
| 43 | TFP7 (waiting for any message with same call identifier) expires. | - | - | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. NOTE: Depending on UE implementation the UE may start independently ProSe release procedure. | - | - | - | - |

7.2.3.3.3 Specific message contents

Table 7.2.3.3.3-1: PRIVATE CALL SETUP REQUEST (Steps 12, 20, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.8.1-1. | | | |
|---|--------------------------|---------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Call type | '00000110'B | EMERGENCY PRIVATE CALL | |
| User location | Nor present or Any value | | |

Table 7.2.3.3.3-2: PRIVATE CALL REJECT (Step 13, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.11.2-1. | | | |
|--|--------------|---------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reason | '00000001'B | MEDIA FAILURE | |

Table 7.2.3.3.3-3: Floor Granted (Step 8, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|---------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | UE (MCPTT client) SSRC | | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.3.3.3-4: Floor Request (Step 15, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.3.3.3-5: Floor Granted (Step 16, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|---|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | The UE (MCPTT client) SSRC (received in the corresponding Floor Request) | | |
| Floor priority | The same as the priority included in the corresponding Floor Request, Not Present if there was no priority included | | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.3.3.3-6: Floor Release (Steps 10, 18, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.3.3.3-7: Floor Request (Step 24, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.2-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

Table 7.2.3.3.3-8: Floor Release (Step 27, Table 7.2.3.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|--|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '00010x00 0000000 | Bit D=1 (Emergency call) bit F=x (Queueing supported) any value | |

7.2.4 Off-network / Private Call / On-demand / Manual Commencement Mode / Call Released before establishment completion / Call request Rejected / Call establishment successful / Client Originated (CO)

7.2.4.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with manual commencement, and, the UE is in an off-network environment
}
ensure that {
  when { the MCPTT User requests the establishment of an MCPTT private call, on-demand Manual
Commencement Mode }
  then { UE (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST message requesting the establishment
of an MCPTT private call, on-demand Manual Commencement Mode }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with manual commencement, and, the UE is in an off-network
environment, and, UE (MCPTT Client) having sent a PRIVATE CALL SETUP REQUEST message requesting
establishment of an MCPTT private call, on-demand Manual Commencement Mode }
ensure that {
  when { the User requests termination of the call after a PRIVATE CALL RINGING message has been
received but before the completion of the call establishment }
  then { UE (MCPTT Client) sends a PRIVATE CALL RELEASE message and terminates the call
establishment }
}
```

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with manual commencement, and, the UE is in an off-network
environment, and, UE (MCPTT Client) having sent a PRIVATE CALL SETUP REQUEST message requesting
establishment of an MCPTT private call, on-demand Manual Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives a PRIVATE CALL REJECT message after a PRIVATE CALL RINGING
message has been received but before the completion of the call establishment }
  then { UE (MCPTT Client) terminates the call establishment }
}
```

(4)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including authorized to
initiate/cancel private calls with manual commencement, and, the UE is in an off-network
environment, and, UE (MCPTT Client) having sent a PRIVATE CALL SETUP REQUEST message requesting
establishment of an MCPTT private call, on-demand Manual Commencement Mode }
ensure that {
  when { the UE (MCPTT Client) receives a PRIVATE CALL RINGING message followed by a PRIVATE CALL
ACCEPT message }
  then { UE (MCPTT Client) transmits a PRIVATE CALL ACCEPT ACK message and considers the call as
being established }
}
```

7.2.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.2.1.1.1, 11.2.1.1.2, 11.2.2.4.4.1, 11.2.2.4.2.7, 11.2.2.4.2.8, 11.2.2.4.4.8. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.2.1.1.1]

In order to participate in a private call, the MCPTT client:

- 1) shall send the MONP message as a UDP message to the local IP address of the MCPTT user, on UDP port TBD, with an IP time-to-live set to 255; and

Editor's note [CT1#95, C1-160392]: Port number for the message is FFS.

2) shall treat UDP messages received on the port TBD as received MONP messages.

NOTE: An MCPTT client that supports IPv6 is supposed to listen to the IPv6 addresses.

[TS 24.379, clause 11.2.1.1.2]

For an off-network MCPTT session, only MCPTT speech is used.

One off-network MCPTT session includes one media-floor control entity.

The MCPTT client shall generate an SDP body for a private call in accordance with rules and procedures of IETF RFC 4566 [12] and IETF RFC 3264 [44].

The MCPTT client:

- 1) shall include in the session-level section:
 - a) the "o=" field with the <username> portion set to a dash;
 - b) the "s=" field with the <session name> portion set to a dash; and
 - c) the "c=" field with the <nettype> portion set to "IN", the <addrtype> portion set to the IP version of the unicast IP address of the MCPTT client and the <connection-address> portion set to the unicast IP address of the MCPTT client;
- 2) shall include the media-level section for MCPTT speech consisting of:
 - a) the "m=" field with the <media> portion set to "audio", the <port> portion set to a port number for MCPTT speech of the MCPTT group, the <proto> field set to "RTP/AVP" and <fmt> portion set indicating RTP payload type numbers;
 - b) the "i=" field with the <session description> portion set to "speech";
 - c) the "a=fmtp:" attribute(s), the "a=rtpmap:" attribute(s) or both, indicating the codec(s) and media parameters of the MCPTT speech; and
 - d) the "a=rtcp:" attribute indicating port number to be used for RTCP at the MCPTT client selected according to the rules and procedures of IETF RFC 3605 [13], if the media steam uses other than the default IP address;
- 3) shall include the media-level section for media-floor control entity consisting of:
 - a) an "m=" line, with the <media> portion set to "application", the <port> portion set to a port number for media-floor control entity of the MCPTT group, the <proto> field set to "udp" and <fmt> portion set to "MCPTT"; and
 - b) the "a=fmtp:MCPTT" attribute indicating the parameters of the media-floor control entity as specified 3GPP TS 24.380 [5]; and
- 4) shall include the MIKEY-SAKKE I_MESSAGE, if generated by the MCPTT client, in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 11.2.2.4.4.1]

When in the "P0: start-stop" state or "P1: ignoring same call id", upon an indication from MCPTT User to initiate a private call and the value of "/<x>/<x>/Common/PrivateCall/Authorised" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true", the MCPTT client:

- 1) shall generate and store the call identifier as a random number uniformly distributed between (0, 65536);
- 2) shall store own MCPTT user ID as caller ID;
- 3) shall store MCPTT user ID of the callee as callee ID;
- 4) shall store "AUTOMATIC COMMENCEMENT MODE" as commencement mode, if requested and the value of "/<x>/<x>/Common/PrivateCall/AutoCommence" leaf node present in the user profile as specified in

3GPP TS 24.383 [45] is set to "true". Otherwise if the value of "/<x>/<x>/Common/PrivateCall/ManualCommence" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true", store "MANUAL COMMENCEMENT MODE" as commencement mode;

- 5) shall create a call type control state machine as described in subclause 11.2.3.2;
- 6) if an end-to-end security context needs to be established then:
 - a) shall use keying material provided by the key management server to generate a PCK as described in 3GPP TS 33.179 [46];
 - b) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0011" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.179 [46];
 - c) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID of the invited user and a time related parameter as described in 3GPP TS 33.179 [46];
 - d) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.179 [46];
 - e) shall add the MCPTT ID of the originating MCPTT to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
 - f) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.179 [46] and;
 - g) shall store the MIKEY-SAKKE I_MESSAGE for later inclusion in an SDP body;
- 7) may store current user location as user location;
- 8) shall generate and store offer SDP, as defined in subclause 11.2.1.1.2;
- 9) shall generate a PRIVATE CALL SETUP REQUEST message as specified in subclause 15.1.5. In the PRIVATE CALL SETUP REQUEST message, the MCPTT client:
 - a) shall set the Call identifier IE with the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID;
 - d) shall set the Commencement mode IE with the stored commencement mode;
 - e) shall set the Call type IE with the stored current call type associated with the call type control state machine;
 - f) shall set the SDP offer IE with the stored offer SDP; and
 - g) may set the User location IE with the stored user location if the stored current call type associated with the call type control state machine is "EMERGENCY PRIVATE CALL".
- 10) shall send the PRIVATE CALL SETUP REQUEST message towards other MCPTT client according to rules and procedures as specified in subclause 11.2.1.1.1;
- 11) shall initialize the counter CFP1 (private call request retransmission) with the value set to 1;
- 12) shall start timer TFP1 (private call request retransmission); and
- 13) shall enter the "P2: waiting for call response" state.

[TS 24.379, clause 11.2.2.4.2.7]

When in the "P2: waiting for call response" state, upon receiving a PRIVATE CALL REJECT message in response to PRIVATE CALL SETUP REQUEST message with Call identifier IE same as the stored call identifier, the MCPTT client:

- 1) shall stop timer TFP1 (call setup retransmission), if running;
- 2) shall stop timer TFP2 (waiting for call response message), if running;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall release the call control state machine; and
- 5) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.2.8]

When in the "P2: waiting for call response" state, upon receiving a PRIVATE CALL ACCEPT message response to PRIVATE CALL SETUP REQUEST message with the same call identifier, the MCPTT client:

- 1) shall store the SDP answer IE received in the PRIVATE CALL ACCEPT message as answer SDP;
- 2) shall generate a PRIVATE CALL ACCEPT ACK message as specified in subclause 15.1.11:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID.
- 3) shall send the PRIVATE CALL ACCEPT ACK message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 4) shall stop timer TFP1 (call setup retransmission), if running;
- 5) shall stop timer TFP2 (waiting for call response message), if running;
- 6) shall establish a media session based on the SDP body of the stored answer SDP;
- 7) shall start floor control as terminating floor participant as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 8) shall start timer TFP5 (max duration); and
- 9) shall enter the "P4: part of ongoing call" state.

[TS 24.379, clause 11.2.2.4.4.8]

When in the "P5: pending" state or "P1: ignoring same call id" state, upon receiving a PRIVATE CALL RELEASE message, the MCPTT client:

- 1) shall generate a PRIVATE CALL RELEASE ACK message as specified in subclause 15.1.10. In the PRIVATE CALL RELEASE ACK message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID.
- 2) shall send the PRIVATE CALL RELEASE ACK message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall stop timer TFP4 (private call accept retransmission) if running;
- 5) shall release the call type control state machine, if the current state is "P5: pending" state; and
- 6) shall enter the "P1: ignoring same call id" state, if the current state is "P5: pending" state.

7.2.4.3 Test description

7.2.4.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server) in the Preamble
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is Switched OFF (state 1) according to TS 36.508 [24].

7.2.4.3.2

Test procedure sequence

Table 7.2.4.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|----------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 3 | Make the UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Manual Commencement Mode, with Floor Control. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 4 | Check: Does the UE (MCPTT client) send a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE? | --> | PRIVATE CALL SETUP REQUEST | 1 | P |
| 5 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RINGING message. | <-- | PRIVATE CALL RINGING | - | - |
| 6 | Make the MCPTT UE (MCPTT User) request termination of the MCPTT private call. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 7 | Check: Does the UE (MCPTT client) send PRIVATE CALL RELEASE message? | --> | PRIVATE CALL RELEASE | 2 | P |
| 8 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message | <-- | PRIVATE CALL RELEASE ACK | - | - |
| - | EXCEPTION: UE releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the UE'. | - | - | - | - |
| 9 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| 10 | Make the MCPTT UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Manual Commencement Mode, with Floor Control. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |

| | | | | | |
|---------|---|-----|----------------------------|---|---|
| 11 | Check: Does the UE (MCPTT client) send a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE? | --> | PRIVATE CALL SETUP REQUEST | 1 | P |
| 12 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RINGING message. | <-- | PRIVATE CALL RINGING | - | - |
| 12 A | Wait for 3 sec to ensure that the UE receives the message sent in step 12 before the one sent in step 13. | - | - | - | - |
| 13 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL REJECT | - | - |
| 13 A | Wait for 3 sec to ensure that the UE receives the message sent in step 13 before the one sent in step 14. | - | - | - | - |
| 14 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT | - | - |
| 15 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT ACK in the next 1 sec? NOTE: It is expected that upon receipt of the message sent in step 13 the UE has entered the "P1: ignoring same call id" state and therefore it shall ignore the message sent in step 14. | --> | PRIVATE CALL ACCEPT ACK | 3 | F |
| - | EXCEPTION: UE releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the UE'. | - | - | - | - |
| 16 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| 17 | Make the MCPTT UE (MCPTT User) request the establishment of an MCPTT private call, on-demand Manual Commencement Mode, with Floor Control. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.5 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 18 | Check: Does the UE (MCPTT client) send a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE? | --> | PRIVATE CALL SETUP REQUEST | 1 | P |
| 19 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RINGING message. | <-- | PRIVATE CALL RINGING | - | - |
| 19 A | Wait for 3 sec to ensure that the UE receives the message sent in step 19 before the one sent in step 20. | - | - | - | - |
| 20 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT message. | <-- | PRIVATE CALL ACCEPT | - | - |
| 21 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT ACK? | --> | PRIVATE CALL ACCEPT ACK | 4 | P |
| 22 | Make the UE (MCPTT User) press the PTT button requesting permission to talk. NOTE 1: Depending on UE implementation the PTT button may already been pressed in step 17. NOTE 2: The UE (MCPTT User) shall keep the button pressed until otherwise written. | - | - | - | - |

| | | | | | |
|----|--|-----|--------------------------|---|---|
| 23 | Does the UE (MCPTT client) send a Floor Granted message? | --> | Floor Granted | 4 | P |
| 24 | Make the UE (MCPTT User) release the PTT button. | - | - | - | - |
| 25 | Check: Does the UE (MCPTT client) sends a Floor Release message? | --> | Floor Release | 4 | P |
| 26 | Make the MCPTT UE (MCPTT User) request termination of the MCPTT private call. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 27 | The UE (MCPTT client) send PRIVATE CALL RELEASE message. | --> | PRIVATE CALL RELEASE | - | - |
| 28 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message. | <-- | PRIVATE CALL RELEASE ACK | - | - |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.8 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |

7.2.4.3.3 Specific message contents

Table 7.2.4.3.3-1: PRIVATE CALL SETUP REQUEST (Steps 4, 11, 18, Table 7.2.4.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.8.1-1. | | | |
|---|--------------------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Commencement mode | '00000001'B | MANUAL COMMENCEMENT MODE | |
| User location | Nor present or Any value | | |

Table 7.2.4.3.3-2: Floor Granted (Step 23, Table 7.2.4.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | UE (MCPTT client) SSRC | | |
| Floor Indicator | | | |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

Table 7.2.4.3.3-3: Floor Release (Step 25, Table 7.2.4.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|-------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| Floor Indicator | | | |
| Floor Indicator | '10000x00 0000000 | Bit A=1 (Normal call) bit F=x (Queueing supported) any value | |

7.2.5 Off-network / Private Call / On-demand / Manual Commencement Mode / Call Released before establishment completion / User does not answer to Ringing / User Rejects call request / Call establishment successful / Client Terminated (CT)

7.2.5.1 Test Purpose (TP)

(1)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including the MCPTT user being
authorized to receive private calls in manual commencement mode, and, the UE is in an off-network
environment }
ensure that {
  when { the UE (MCPTT Client) receives a request for establishment of an MCPTT private call, On-
demand Manual Commencement Mode }
    then { UE (MCPTT Client) sends a PRIVATE CALL RINGING message and provides indication to the
user for the incoming call request }
}
```

(2)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including the MCPTT user being
authorized to receive private calls in manual commencement mode, and, the UE is in an off-network
environment, and, the UE (MCPTT Client) has responded to a request for establishment of an MCPTT
private call, On-demand Manual Commencement Mode by sending a PRIVATE CALL RINGING message }
ensure that {
  when { the originating Client requests release of the call establishment before the terminating
user has accepted the call }
    then { UE (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message and terminates the call
establishment }
}
```

(3)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including the MCPTT user being
authorized to receive private calls in manual commencement mode, and, the UE is in an off-network
environment, and, the UE (MCPTT Client) has informed the User for an incoming MCPTT private call
request }
ensure that {
  when { the terminating User does not answer before the expiry of timer TFP2 (waiting for call
response message) }
    then { UE (MCPTT Client) rejects the call establishment }
}
```

(4)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including the MCPTT user being
authorized to receive private calls in manual commencement mode, and, the UE is in an off-network
environment, and, the UE (MCPTT Client) has informed the User for an incoming MCPTT private call
request }
ensure that {
  when { the terminating User rejects the call request }
    then { UE (MCPTT Client) rejects the call establishment }
}
```

(5)

```
with { UE (MCPTT Client) registered and authorized for MCPTT Service, including the MCPTT user being
authorized to receive private calls in manual commencement mode, and, the UE is in an off-network
environment, and, the UE (MCPTT Client) has responded to a request for establishment of an MCPTT
private call, On-demand Manual Commencement Mode by sending a PRIVATE CALL RINGING message }
ensure that {
  when { the terminating User accepts the incoming call }
    then { UE (MCPTT Client) sends a PRIVATE CALL ACCEPT message, and, after receiving a PRIVATE
CALL ACCEPT ACK message considers the call as being established }
}
```

(6)

```

with { UE (MCPTT Client) having established an MCPTT private call, Manual Commencement Mode in off-
network environment }
ensure that {
  when { (MCPTT Client) receives a requests from the calling Client for release of the call }
  then { UE (MCPTT Client) sends a PRIVATE CALL RELEASE ACK message and leaves the MCPTT session }
}

```

7.2.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.379 clauses 11.2.1.1.1, 11.2.1.1.2, 11.2.2.4.4.1, 11.2.2.4.4.2, 11.2.2.4.4.3, 11.2.2.4.4.5, 11.2.2.4.4.7, 11.2.2.4.4.8. Unless otherwise stated these are Rel-13 requirements.

[TS 24.379, clause 11.2.1.1.1]

In order to participate in a private call, the MCPTT client:

- 1) shall send the MONP message as a UDP message to the local IP address of the MCPTT user, on UDP port TBD, with an IP time-to-live set to 255; and

Editor's note [CT1#95, C1-160392]: Port number for the message is FFS.

- 2) shall treat UDP messages received on the port TBD as received MONP messages.

NOTE: An MCPTT client that supports IPv6 is supposed to listen to the IPv6 addresses.

[TS 24.379, clause 11.2.1.1.2]

For an off-network MCPTT session, only MCPTT speech is used.

One off-network MCPTT session includes one media-floor control entity.

The MCPTT client shall generate an SDP body for a private call in accordance with rules and procedures of IETF RFC 4566 [12] and IETF RFC 3264 [44].

The MCPTT client:

- 1) shall include in the session-level section:
 - a) the "o=" field with the <username> portion set to a dash;
 - b) the "s=" field with the <session name> portion set to a dash; and
 - c) the "c=" field with the <nettype> portion set to "IN", the <addrtype> portion set to the IP version of the unicast IP address of the MCPTT client and the <connection-address> portion set to the unicast IP address of the MCPTT client;
- 2) shall include the media-level section for MCPTT speech consisting of:
 - a) the "m=" field with the <media> portion set to "audio", the <port> portion set to a port number for MCPTT speech of the MCPTT group, the <proto> field set to "RTP/AVP" and <fmt> portion set indicating RTP payload type numbers;
 - b) the "i=" field with the <session description> portion set to "speech";
 - c) the "a=fmtp:" attribute(s), the "a=rtpmap:" attribute(s) or both, indicating the codec(s) and media parameters of the MCPTT speech; and
 - d) the "a=rtcp:" attribute indicating port number to be used for RTCP at the MCPTT client selected according to the rules and procedures of IETF RFC 3605 [13], if the media steam uses other than the default IP address;
- 3) shall include the media-level section for media-floor control entity consisting of:
 - a) an "m=" line, with the <media> portion set to "application", the <port> portion set to a port number for media-floor control entity of the MCPTT group, the <proto> field set to "udp" and <fmt> portion set to "MCPTT"; and

- b) the "a=fmtp:MCPTT" attribute indicating the parameters of the media-floor control entity as specified 3GPP TS 24.380 [5]; and
- 4) shall include the MIKEY-SAKKE I_MESSAGE, if generated by the MCPTT client, in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [47].

[TS 24.379, clause 11.2.2.4.4.1]

When in the "P0: start-stop" or "P1: ignoring same call id" state, upon receiving a PRIVATE CALL SETUP REQUEST message with Commencement mode IE set to "MANUAL COMMENCEMENT MODE" and Call identifier IE different from stored call identifier, the MCPTT client:

- 1) shall store the Call identifier IE in the received message as call identifier;
- 2) shall create the call type control state machine as described in subclause 11.2.3.2;
- 3) shall store the MCPTT user ID of the caller IE as received in the PRIVATE CALL SETUP REQUEST as caller ID;
- 4) shall store own MCPTT user ID as callee ID;
- 5) shall generate a PRIVATE CALL RINGING message as specified in subclause 15.1.6;
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID;
- 6) shall send PRIVATE CALL RINGING message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 7) shall start timer TFP2 (waiting for call response message); and
- 8) shall enter the "P5: pending" state.

[TS 24.379, clause 11.2.2.4.4.2]

When in the "P5: pending" state, upon expiry of timer TFP2 (waiting for call response message), the MCPTT client:

- 1) shall generate a PRIVATE CALL REJECT message as specified in subclause 15.1.8:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID; and
 - d) shall set the Reason IE as "FAILED".
- 2) shall send the PRIVATE CALL REJECT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall release the call type control state machine; and
- 5) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.4.3]

When in the "P5: pending" state, upon an indication from MCPTT User to accept the incoming private call, the MCPTT client:

- 1) if the SDP offer contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

- a) shall extract the MCPTT ID of the originating MCPTT user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.179 [46];
- b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.179 [46];
- c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.179 [46];
- ...
- e) if the validation of the signature was successful:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.179 [46];
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.179 [46];
 - iii) shall generate and store answer SDP based on received SDP offer IE in PRIVATE CALL SETUP REQUEST message, as defined in subclause 11.2.1.1.2;
 - iv) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7. In the PRIVATE CALL ACCEPT message, the MCPTT client:
 - A) shall set the Call identifier IE to the stored call identifier;
 - B) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - C) shall set the MCPTT user ID of the callee IE with the stored callee ID; and
 - D) shall set the SDP answer IE with the stored answer SDP;
 - v) shall send the PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - vi) shall establish a media session based on the SDP body of the private call;
 - vii) shall stop timer TFP2 (waiting for call response message);
 - viii) shall initialize the counter CFP4 with value set to 1;
 - ix) shall start timer TFP4 (private call accept retransmission); and
 - x) shall remain in the "P5: pending" state; and

NOTE: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

- 2) if the SDP offer does not contain an "a=key-mgmt" attribute, the MCPTT client:
 - a) shall generate and store answer SDP based on received SDP offer IE in PRIVATE CALL SETUP REQUEST message, as defined in subclause 11.2.1.1.2;
 - b) shall generate a PRIVATE CALL ACCEPT message as specified in subclause 15.1.7. In the PRIVATE CALL ACCEPT message, the MCPTT client:
 - i) shall set the Call identifier IE to the stored call identifier;
 - ii) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - iii) shall set the MCPTT user ID of the callee IE with the stored callee ID; and
 - iv) shall set the SDP answer IE with the stored answer SDP;
 - c) shall send the PRIVATE CALL ACCEPT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
 - d) shall establish a media session based on the SDP body of the private call;

- e) shall stop timer TFP2 (waiting for call response message);
- f) shall initialize the counter CFP4 with value set to 1;
- g) shall start timer TFP4 (private call accept retransmission); and
- h) shall remain in the "P5: pending" state.

[TS 24.379, clause 11.2.2.4.4.5]

When in the "P5: pending" state, upon receiving a PRIVATE CALL ACCEPT ACK message or RTP media from originating user, the MCPTT client:

- 1) shall stop timer TFP4 (private call accept retransmission);
- 2) shall start floor control as terminating MCPTT client as specified in subclause 7.2 in 3GPP TS 24.380 [5];
- 3) shall start timer TFP5 (max duration); and
- 4) shall enter the "P4: part of ongoing call" state.

[TS 24.379, clause 11.2.2.4.4.7]

When in the "P5: pending" state, upon an indication from MCPTT User to reject the incoming private call, the MCPTT client:

- 1) shall generate a PRIVATE CALL REJECT message as specified in subclause 15.1.8:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID;
 - c) shall set the MCPTT user ID of the callee IE with stored callee ID; and
 - d) shall set the Reason IE as "FAILED", if requested to restrict notification of call failure and the value of "/<x>/<x>/Common/PrivateCall/FailRestrict" leaf node present in the user profile as specified in 3GPP TS 24.383 [45] is set to "true". Otherwise, shall set the Reason IE as "REJECT";
- 2) shall send the PRIVATE CALL REJECT message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall release the call type control state machine; and
- 5) shall enter the "P1: ignoring same call id" state.

[TS 24.379, clause 11.2.2.4.4.8]

When in the "P5: pending" state or "P1: ignoring same call id" state, upon receiving a PRIVATE CALL RELEASE message, the MCPTT client:

- 1) shall generate a PRIVATE CALL RELEASE ACK message as specified in subclause 15.1.10. In the PRIVATE CALL RELEASE ACK message, the MCPTT client:
 - a) shall set the Call identifier IE to the stored call identifier;
 - b) shall set the MCPTT user ID of the caller IE with the stored caller ID; and
 - c) shall set the MCPTT user ID of the callee IE with the stored callee ID.
- 2) shall send the PRIVATE CALL RELEASE ACK message in response to the request message according to rules and procedures as specified in subclause 11.2.1.1.1;
- 3) shall start timer TFP7 (waiting for any message with same call identifier);
- 4) shall stop timer TFP4 (private call accept retransmission) if running;

- 5) shall release the call type control state machine, if the current state is "P5: pending" state; and
- 6) shall enter the "P1: ignoring same call id" state, if the current state is "P5: pending" state.

7.2.5.3 Test description

7.2.5.3.1 Pre-test conditions

System Simulator:

- SS-UE1 (MCPTT client)
 - For the underlying "transport bearer" over which the SS and the UE will communicate, the SS is behaving as SS-UE1 as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator to simulate a location and provide a timing reference for the assistance of E-UTRAN off-network testing.

NOTE 1: For operation in off-network environment, it needs be ensured that after the UE is powered up it considers the Geographical area #1 that is simulated by the GNSS simulator as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

- SS-NW (MCPTT server) in the Preamble
 - For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [24] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

NOTE 2: The SS operation as NW (MCPTT server) is needed only for the preamble if the UE has to perform procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.

IUT:

- UE (MCPTT client)
- The test USIM set as defined in TS 36.579-1 [2] clause 5.5.10 is inserted.
- For the underlying "transport bearer" over which the SS and the UE will communicate, the UE is behaving as a ProSe enabled UE as defined in TS 36.508 [24], configured for and operating as ProSe Direct Communication transmitting and receiving device.

Preamble:

- The UE has performed procedure 'MCX Authorization/Configuration and Key Generation' as specified in TS 36.579-1 [2] clause 5.3.2.
- The GNSS simulator is configured to simulate a location in the centre of Geographical area #1 and provide a timing reference, as defined in TS 36.508 [24] Table 4.11.2-2 scenario #1.
- The UE is Switched OFF (state 1) according to TS 36.508 [24].

7.2.5.3.2

Test procedure sequence

Table 7.2.5.3.2-1: Main behaviour

| St | Procedure | Message Sequence | | TP | Verdict |
|----|---|------------------|----------------------------|----|---------|
| | | U - S | Message | | |
| 1 | Power up the UE. | - | - | - | - |
| 1A | Trigger the UE to reset UTC time and location. NOTE: The UTC time and location reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 2 | Activate the MCPTT Client Application and register User A as the MCPTT User (TS 36.579-5 [5], px_MCPTT_User_A_username, px_MCPTT_User_A_password). NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 3 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 4 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RINGING message? | --> | PRIVATE CALL RINGING | 1 | P |
| 5 | Check: Does the UE (MCPTT client) notifies the User for the incoming call request? NOTE: Make the UE (MCPTT User) not to respond. | - | - | 1 | P |
| 6 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RELEASE message. | <-- | PRIVATE CALL RELEASE | - | - |
| 7 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RELEASE ACK message? | --> | PRIVATE CALL RELEASE ACK | 2 | P |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |
| 8 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 9 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 10 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RINGING message? | --> | PRIVATE CALL RINGING | 1 | P |
| 11 | Check: Does the UE (MCPTT client) notifies the User for the incoming call request? | - | - | 1 | P |
| 12 | Start timer TFP2 (waiting for call response message). | - | - | - | - |
| 13 | Make the UE (MCPTT User) not to respond. | - | - | - | - |
| 14 | Timer TFP2 (waiting for call response message) expires. | - | - | - | - |

| | | | | | |
|----|---|-----|----------------------------|---|---|
| 15 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT message? | --> | PRIVATE CALL REJECT | 3 | P |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |
| 16 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 17 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 18 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RINGING message? | --> | PRIVATE CALL RINGING | 1 | P |
| 19 | Check: Does the UE (MCPTT client) notifies the User for the incoming call request? | - | - | 1 | P |
| 20 | Make the UE (MCPTT User) reject the establishment of an MCPTT private call, on-demand Manual Commencement Mode. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 21 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT message? | --> | PRIVATE CALL REJECT | 4 | P |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |
| 22 | Wait for 5 sec to ensure the UE is in stable state - scanning for incoming ProSe messages. | - | - | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in TS 36.579-1 [2] clause 5.4.6 'MCX CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - | - | - |
| 23 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL SETUP REQUEST, Commencement mode set to MANUAL COMMENCEMENT MODE. | <-- | PRIVATE CALL SETUP REQUEST | - | - |
| 24 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RINGING message? | --> | PRIVATE CALL RINGING | 1 | P |
| 25 | Check: Does the UE (MCPTT client) notifies the User for the incoming call request? | - | - | 1 | P |
| 26 | Make the UE (MCPTT User) accept the establishment of an MCPTT private call, on-demand Manual Commencement Mode. NOTE: This is expected to be done via a suitable implementation dependent MMI. | - | - | - | - |
| 27 | Check: Does the UE (MCPTT client) send a PRIVATE CALL ACCEPT message? | --> | PRIVATE CALL ACCEPT | 5 | P |

| | | | | | |
|------|--|-----|--------------------------|---|---|
| 28 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL ACCEPT ACK. | <-- | PRIVATE CALL ACCEPT ACK | - | - |
| 28 A | Wait for 3 sec to ensure that the UE receives the message sent in step 28 before the one sent in step 29. | - | - | - | - |
| 29 | SS-UE1 (MCPTT Client) sends a Floor Granted message. | <-- | Floor Granted | - | - |
| 29 A | Wait for 3 sec to ensure that the UE receives the message sent in step 29 before the one sent in step 30. | - | - | - | - |
| 30 | SS-UE1 (MCPTT Client) sends a Floor Release message | <-- | Floor Release | - | - |
| 30 A | Wait for 3 sec to ensure that the UE receives the message sent in step 30 before the one sent in step 31. | - | - | - | - |
| 31 | SS-UE1 (MCPTT Client) sends a PRIVATE CALL RELEASE message. | <-- | PRIVATE CALL RELEASE | - | - |
| 32 | Check: Does the UE (MCPTT client) send a PRIVATE CALL RELEASE ACK message? | --> | PRIVATE CALL RELEASE ACK | 6 | P |
| - | EXCEPTION: SS releases the E-UTRA connection. The E-UTRA/EPC actions which are related to the MCPTT call release are described in TS 36.579-1 [2] clause 5.4.7 'MCX CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-release by the SS'. | - | - | - | - |

7.2.5.3.3 Specific message contents

Table 7.2.5.3.3-1: PRIVATE CALL SETUP REQUEST (Steps 3, 9, 17, 23, Table 7.2.5.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.8.2-1. | | | |
|---|--------------|--------------------------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Commencement mode | '00000001'B | MANUAL COMMENCEMENT MODE | |

Table 7.2.5.3.3-2: PRIVATE CALL REJECT (Step 15, Table 7.2.5.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.11.1-1. | | | |
|--|--------------|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reason | '00000100'B | FAILED | |

Table 7.2.5.3.3-3: PRIVATE CALL REJECT (Step 21, Table 7.2.5.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.5.11.1-1. | | | |
|--|--------------|---------|-----------|
| Information Element | Value/remark | Comment | Condition |
| Reason | '00000000'B | REJECT | |

Table 7.2.5.3.3-4: Floor Granted (Step 29, Table 7.2.5.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.3-1 condition OFF-NETWORK. | | | |
|---|-------------------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| SSRC of granted floor participant | SS-UE1 (MCPTT Client) SSRC | | |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Table 7.2.5.3.3-5: Floor Release (Step 30, Table 7.2.5.3.2-1)

| Derivation Path: 36.579-1 [2], Table 5.5.6.5-1 condition OFF-NETWORK. | | | |
|---|--------------------|---|-----------|
| Information Element | Value/remark | Comment | Condition |
| User ID | | | |
| User ID | px_MCPTT_User_B_ID | The MCPTT User ID of the one simulated by the SS | |
| Floor Indicator | | | |
| Floor Indicator | '10000100 0000000 | Bit A=1 (Normal call) bit F=1 (Queueing supported) | |

Annex A (informative): Change history

| |
|----------------|
| Change history |
|----------------|

| Date | Meeting | TDoc | CR | Rev | Cat | Subject/Comment | New version |
|---------|---------|-----------|----|-----|-----|---|-------------|
| 2017-02 | RAN5#74 | R5-171299 | - | - | - | Introduction of TS 36.579-2. | 0.0.1 |
| 2017-05 | RAN5#75 | R5-172101 | - | - | - | Introduced pCR from R5-172080 New MCPTT TC 6.2.1 CO Private Call automatic floor control emergency upgrade R5-172081 New MCPTT TC 6.2.2 CT Private Call automatic floor control emergency upgrade R5-172082 New MCPTT TC 6.2.3 CO Private Call automatic no floor control R5-172083 New MCPTT TC 6.2.4 CT Private Call automatic no floor control R5-172084 New MCPTT TC 6.2.5 CO Private Emergency Call Automatic R5-172085 New MCPTT TC 6.2.6 CT Private Emergency Call Force of automatic commencement R5-172086 New MCPTT TC 6.2.7 CO Private Call Manual R5-172087 New MCPTT TC 6.2.8 CT Private Call Manual R5-172970 New MCPTT TC 5.3 Group Affiliation and De-affiliation R5-172971 New MCPTT TC 5.4 Pre-established Session Establishment Modification and Release R5-172972 New MCPTT TC 6.1.1.1 CO On-Demand Pre-arranged Group Call with Floor Control and Upgrades and Automatic Commencement Mode R5-172973 New MCPTT TC 6.1.1.4 CT On-demand Pre-arranged Group Call with Manual Commencement Mode R5-172974 New MCPTT TC 6.1.2.3 On-network / One MCPTT System / Chat Group Call Using Pre-established Session / Client originated Pre-established Session Release with associated MCPTT session / Client Origination (CO) R5-172975 MCPTT Testing: Introduction of test case 5.1 in 36.579-2 R5-172976 MCPTT Testing: Introduction of test case 5.2 in 36.579-2 R5-172977 MCPTT Testing: Introduction of test case 6.1.2.1 in 36.579-2 | 0.0.2 |
| 2017-06 | RAN5#75 | - | - | - | - | lifted to v0.1.0 with small editorial changes, because of technical contents | 0.1.0 |

| | | | | | |
|---------|---------|-----------|--|---|-------|
| 2017-09 | RAN5#76 | R5-173767 | | <p>Introduced pCR from</p> <ul style="list-style-type: none"> R5-173708 Editorial updates of MCPTT TS 36579-2 R5-173709 Update of MCPTT TC 6.2.1 R5-174601 Update of MCPTT TC 6.2.2 R5-173711 Update of MCPTT TC 6.2.3 R5-173712 Update of MCPTT TC 6.2.4 R5-173713 Update of MCPTT TC 6.2.5 R5-173714 Update of MCPTT TC 6.2.6 R5-173715 Update of MCPTT TC 6.2.7 R5-173716 Update of MCPTT TC 6.2.8 R5-173717 New MCPTT TC 6.2.9 Private call pre-established session automatic CO R5-173718 New MCPTT TC 6.2.10 Private call pre-established session automatic CT R5-173719 New MCPTT TC 6.2.11 Private call pre-established session manual CT R5-173720 New MCPTT TC 7.1.2.1 Private call off-network R5-173721 New MCPTT TC 7.1.2.2 Private call off-network R5-173722 New MCPTT TC 7.1.2.3 Private call off-network R5-173723 New MCPTT TC 7.1.2.4 Private call off-network R5-173724 New MCPTT TC 7.1.2.5 Private call off-network R5-174602 Update of MCPTT TC 6.1.2.2 R5-174603 New MCPTT TC 6.1.2.3 On-network / One MCPTT System / Chat Group Call / Late Entry R5-174604 New MCPTT TC 6.1.2.4 On-network / One MCPTT System / Chat Group Call / Rejection Upon Join Attempt / Join Attempt Successful / De-affiliation R5-174605 Update of MCPTT TC 5.3 R5-174606 Update of MCPTT TC 5.4 R5-174607 Update of MCPTT TC 6.1.1.1 R5-174608 Update of MCPTT TC 6.1.1.4 R5-174609 New MCPTT TC 6.1.1.2 Group Call Client Terminated with Floor Control R5-174610 New MCPTT TC 6.1.1.3 Group Call CO Manual Commencement R5-174611 New MCPTT TC 6.1.1.5 Group Call CO pre-established session R5-174612 New MCPTT TC 6.1.1.6 Group Call CT pre-established session with auto R5-174613 New MCPTT TC 6.1.1.7 Group Call CT pre-established session with manual R5-174614 New MCPTT TC 6.1.1.15 Group Call CO Emergency Alerts R5-174615 New MCPTT TC 6.1.1.16 Group Call CT Emergency Alerts R5-174616 New MCPTT TC 7.1.1.1 Off-Network Group Call - basic call with upgrades and downgrades R5-174617 MCPTT Testing: Additions for test case 5.1 in 36.579-2 R5-174043 MCPTT Testing: Additions for test case 6.1.2.1 in 36.579-2 R5-174618 New MCPTT TC 6.1.1.8 On-network / One MCPTT System / Pre-arranged Broadcast Group Call / Client Originated (CO) R5-174619 New MCPTT TC 6.1.1.9 On-network / One MCPTT System / Pre-arranged Broadcast Group Call / Client Terminated (CT) R5-174620 New MCPTT TC 6.1.1.10 On-network / One MCPTT System / Broadcast Group Call with Temporary Group / Client Originated (CO) R5-174621 New MCPTT TC 6.1.1.11 On-network / One MCPTT System / Pre-arranged Emergency Group Call / Client Originated (CO) R5-174622 New MCPTT TC 6.1.1.12 On-network / One MCPTT System / Pre-arranged Emergency Group Call / Client Terminated (CT) R5-174623 New MCPTT TC 6.1.2.5 On-network / One MCPTT System / Chat Group Group-broadcast Broadcast Group Call / Client Originated (CO) R5-174624 New MCPTT TC 6.1.2.6 On-network / One MCPTT System / Chat Group Broadcast Group Call / Client Terminated (CT) R5-174625 New MCPTT TC 6.1.2.7 On-network / One MCPTT System / Chat Group Emergency Group Call / Client Originated (CO) R5-174626 New MCPTT TC 6.1.2.8 On-network / One MCPTT System / Chat Group Emergency Group Call / Client Terminated (CT) | 0.2.0 |
|---------|---------|-----------|--|---|-------|

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| 2017-11 | RAN#77 | R5-176836 | - | - | - | Updated with pCR R5-177003, R5-177004, R5-177005, R5-177006, R5-177007, R5-177008, R5-177009, R5-176270, R5-176271, R5-176272, R5-176273, R5-176274, R5-176275, R5-176276, R5-176277, R5-176278, R5-176279, R5-176280, R5-176281, R5-177010, R5-177011, R5-177012, R5-177013, R5-177014, R5-177015, R5-177016, R5-177017, R5-177018, R5-177019, R5-177020, R5-177021, R5-177022, R5-177023, R5-177024, R5-177025, R5-177026, R5-177027, R5-177028, R5-177029, R5-177030, R5-177031, R5-177032, R5-177033, R5-177034, R5-177035, R5-177036, R5-177037 Editor's alignments: sections numbering and adding FFS. | 0.3.0 |
| 2017-12 | RAN#78 | RP-172183 | - | - | - | Draft version for information purposes to the RAN Plenary | 1.0.0 |
| 2018-03 | RAN#78 | R5-180685 | - | - | - | Updated with pCR R5-181242, R5-181243, R5-181244, R5-181245, R5-181246, R5-181247, R5-181248, R5-181249, R5-181250, R5-181251, R5-181252, R5-181253, R5-181254, R5-181255, R5-181256, R5-181257, R5-181258, R5-181259, R5-181260, R5-180519, R5-180520, R5-180521, R5-180522, R5-180523, R5-180524, R5-180525, R5-180526, R5-180527, R5-180528, R5-180529, R5-180530, R5-180531, R5-180532, R5-180533, R5-181261, R5-181262, R5-181263, R5-181264, R5-180640, R5-181265, R5-180642, R5-181266, R5-180644, R5-181267, R5-180646, R5-180647, R5-180648, R5-180649, R5-180650, R5-180651, R5-180652, R5-180653, R5-180654, R5-180655, R5-181268 | 1.1.0 |
| 2018-03 | RAN#79 | RP-180127 | - | - | - | Draft version for approval to move the spec under revision control to the RAN Plenary | 2.0.0 |
| 2018-03 | RAN#79 | - | - | - | - | Editorial changes and promoted to v13.0.0 | 13.0.0 |
| 2018-06 | RAN#80 | R5-182418 | 0001 | - | F | Addition and correction of GNSS information | 13.1.0 |
| 2018-06 | RAN#80 | R5-182419 | 0002 | - | F | Editorial correction of typos and incorrect references | 13.1.0 |
| 2018-06 | RAN#80 | R5-182430 | 0003 | - | F | Editorial Update of 36.579-2 for style H6 | 13.1.0 |
| 2018-06 | RAN#80 | R5-182431 | 0004 | - | F | Update of TC 5.1 for MCPTT APN | 13.1.0 |
| 2018-06 | RAN#80 | R5-182432 | 0005 | - | F | Updates of Location information messages in 36.579-2 | 13.1.0 |
| 2018-06 | RAN#80 | R5-182489 | 0008 | - | F | Update of MCPTT TC 6.1.1.1 | 13.1.0 |
| 2018-06 | RAN#80 | R5-182510 | 0009 | - | F | Correction to MCPTT TC of 6.1.1.8, 6.1.1.11, 6.1.2.5 and 6.1.2.7 | 13.1.0 |
| 2018-06 | RAN#80 | R5-183167 | 0006 | 1 | F | Updates of TC 6.3.1 | 13.1.0 |
| 2018-06 | RAN#80 | R5-183168 | 0007 | 1 | F | Updates of TC 6.3.2 | 13.1.0 |
| 2018-09 | RAN#81 | R5-184692 | 0016 | - | F | Editorial updates to 36.579-2 Rel-13 TCs | 13.2.0 |
| 2018-09 | RAN#81 | R5-184687 | 0011 | - | F | Adding a new Rel-14 TC on Private Call Call-Back Request / Client Terminated (CT) / Private call call-back fulfilment | 14.0.0 |
| 2018-09 | RAN#81 | R5-184689 | 0013 | - | F | Adding a new Rel-14 TC on Private Call / Remotely initiated Ambient listening call Client Terminated (CT) | 14.0.0 |
| 2018-09 | RAN#81 | R5-184690 | 0014 | - | F | Adding a new Rel-14 TC on Private Call / Locally initiated Ambient listening call / Client Originated (CO) | 14.0.0 |
| 2018-09 | RAN#81 | R5-184691 | 0015 | - | F | Adding a new Rel-14 TC on Private Call / Locally initiated Ambient listening call / Client Terminated (CT) | 14.0.0 |
| 2018-09 | RAN#81 | R5-185123 | 0010 | 1 | F | Adding a new Rel-14 TC on Private Call Call-Back Request / Client Originated (CO) / Private call call-back fulfilment | 14.0.0 |
| 2018-09 | RAN#81 | R5-185124 | 0012 | 1 | F | Adding a new Rel-14 TC on Private Call / Remotely initiated Ambient listening call Client Originated (CO) | 14.0.0 |
| 2018-12 | RAN#82 | R5-186882 | 0017 | - | F | Update of MCPTT Client off-network operation TCs Core requirements to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-186883 | 0018 | - | F | Update of MCPTT Private Calls with Floor Control TCs Core requirements to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-186884 | 0019 | - | F | Update of MCPTT Private Calls without Floor Control TCs Core requirements to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-186885 | 0020 | - | F | Update of MCPTT Private Calls within a pre-established session TCs Core requirements to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-187718 | 0021 | 1 | F | Update of TC 5.1 in 36.579-2 | 14.1.0 |
| 2019-03 | RAN#83 | R5-191903 | 0022 | - | F | Update to MCPTT TC 7.2.1 Off-network / Private Call CO | 14.2.0 |
| 2019-03 | RAN#83 | R5-191904 | 0023 | - | F | Update to MCPTT TC 7.2.2 Off-network / Private Call CT | 14.2.0 |
| 2019-03 | RAN#83 | R5-191905 | 0024 | - | F | Update to MCPTT TC 7.2.3 Off-network / Private Call CO | 14.2.0 |
| 2019-03 | RAN#83 | R5-191907 | 0026 | - | F | Update to MCPTT TC 7.2.5 Off-network / Private Call CT | 14.2.0 |
| 2019-03 | RAN#83 | R5-192159 | 0041 | - | F | Update 36.579-2 Typos in Reference and Scope | 14.2.0 |
| 2019-03 | RAN#83 | R5-192366 | 0025 | 1 | F | Update to MCPTT TC 7.2.4 Off-network / Private Call CO | 14.2.0 |
| 2019-03 | RAN#83 | R5-192367 | 0027 | 1 | F | Update to MCPTT TC 7.1.1 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192368 | 0028 | 1 | F | Update to MCPTT TC 7.1.2 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192369 | 0029 | 1 | F | Update to MCPTT TC 7.1.3 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192370 | 0030 | 1 | F | Update to MCPTT TC 7.1.4 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192371 | 0031 | 1 | F | Update to MCPTT TC 7.1.5 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192372 | 0032 | 1 | F | Update to MCPTT TC 7.1.6 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192373 | 0033 | 1 | F | Update to MCPTT TC 7.1.7 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192374 | 0034 | 1 | F | Update to MCPTT TC 7.1.8 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192375 | 0035 | 1 | F | Update to MCPTT TC 7.1.9 Off-network / Group Call | 14.2.0 |

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| 2019-03 | RAN#83 | R5-192376 | 0036 | 1 | F | Update to MCPTT TC 7.1.10 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192377 | 0037 | 1 | F | Update to MCPTT TC 7.1.11 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192378 | 0038 | 1 | F | Update to MCPTT TC 7.1.12 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192379 | 0039 | 1 | F | Update to MCPTT TC 7.1.13 Off-network / Group Call | 14.2.0 |
| 2019-03 | RAN#83 | R5-192836 | 0040 | 1 | F | Update 36.579-2 Typo of 36.579-1 reference throughout spec | 14.2.0 |
| 2019-06 | RAN#84 | R5-194666 | 0045 | - | F | Typo for MCPTT in 36.579-2 | 14.3.0 |
| 2019-06 | RAN#84 | R5-195218 | 0042 | 1 | F | Correction of floor control messages in test case 6.1.1.1 | 14.3.0 |
| 2019-06 | RAN#84 | R5-195219 | 0043 | 1 | F | Correction of call setup in test case 6.1.1.2 | 14.3.0 |
| 2019-06 | RAN#84 | RP-191440 | 0044 | 2 | F | Correction of call setup in test case 6.1.1.4 | 14.3.0 |
| 2019-09 | RAN#85 | R5-195969 | 0046 | - | F | Correction of test case 5.3 | 14.4.0 |
| 2019-09 | RAN#85 | R5-195971 | 0048 | - | F | Correction of test case 6.1.1.1 | 14.4.0 |
| 2019-09 | RAN#85 | R5-196301 | 0056 | - | F | Correction of test case 6.2.1 | 14.4.0 |
| 2019-09 | RAN#85 | R5-196302 | 0057 | - | F | Correction of test case 6.2.3 | 14.4.0 |
| 2019-09 | RAN#85 | R5-196303 | 0058 | - | F | Correction of test case 6.2.5 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197107 | 0059 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.1 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197108 | 0060 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.3 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197109 | 0061 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.4 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197110 | 0062 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.5 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197111 | 0063 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.6 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197112 | 0064 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.7 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197113 | 0065 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.8 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197114 | 0066 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.9 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197115 | 0067 | 1 | F | Update to MCPTT Chat Group TC 6.1.2.10 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197116 | 0068 | 1 | F | New MCPTT Chat Group TC 6.1.2.11 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197117 | 0069 | 1 | F | New MCPTT Chat Group TC 6.1.2.12 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197130 | 0073 | 1 | F | Update to TC 5.4 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197131 | 0074 | 1 | F | Update to TC 6.1.1.5 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197135 | 0049 | 1 | F | Correction of test case 6.1.1.11 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197136 | 0050 | 1 | F | Correction of test case 6.1.1.13 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197137 | 0052 | 1 | F | Corrections to references and values in TS 36.579-2 | 14.4.0 |
| 2019-12 | RAN#86 | R5-198165 | 0075 | - | F | Corrections to MCPTT test case 6.1.1.12 | 14.5.0 |
| 2019-12 | RAN#86 | R5-199078 | 0076 | 2 | F | Updates to TC 6.1.1.13 | 14.5.0 |
| 2019-12 | RAN#86 | R5-199078 | 0076 | 2 | F | Updates to TC 6.1.1.13 | 14.5.0 |
| 2020-03 | RAN#87 | R5-200266 | 0078 | - | F | Addition of further references | 14.6.0 |
| 2020-03 | RAN#87 | R5-201151 | 0079 | 1 | F | Corrections to MCPTT test case 5.1 | 14.6.0 |
| 2020-06 | RAN#88 | R5-201589 | 0081 | - | F | Correction to MCPTT test case 5.2 | 14.7.0 |
| 2020-06 | RAN#88 | R5-201590 | 0082 | - | F | Correction to MCPTT test case 6.1.1.7 | 14.7.0 |
| 2020-06 | RAN#88 | R5-201591 | 0083 | - | F | Correction to MCPTT test case 6.1.1.14 | 14.7.0 |
| 2020-06 | RAN#88 | R5-202383 | 0084 | 1 | F | Corrections to test case 6.1.1.1 | 14.7.0 |
| 2020-06 | RAN#88 | R5-202386 | 0086 | 1 | F | Broadcast calls over pre-established sessions | 14.7.0 |
| 2020-06 | RAN#88 | R5-202558 | 0087 | 1 | F | New MCPTT Test Case - 5.5 | 14.7.0 |
| 2020-06 | RAN#88 | R5-203075 | 0080 | 1 | F | Correction to MCPTT test case 5.1 | 14.7.0 |
| 2020-06 | RAN#88 | R5-203115 | 0085 | 2 | F | Update to test case 6.1.1.2 | 14.7.0 |
| 2020-09 | RAN#89 | R5-204536 | 0089 | 1 | F | Update to MCPTT Test Case 6.1.1.3 | 14.8.0 |
| 2020-09 | RAN#89 | R5-204537 | 0090 | 1 | F | Update to MCPTT Test Case 6.1.1.4 | 14.8.0 |
| 2020-09 | RAN#89 | R5-204538 | 0091 | 1 | F | Update to MCPTT Test Case 6.1.1.7 | 14.8.0 |
| 2020-09 | RAN#89 | R5-204539 | 0092 | 1 | F | Correction to MCPTT Test Case 6.1.1.8 | 14.8.0 |
| 2020-09 | RAN#89 | R5-204540 | 0093 | 1 | F | Integration of security features in MBMS procedures | 14.8.0 |
| 2020-09 | RAN#89 | R5-204541 | 0094 | 1 | F | Corrections to Chat Group Calls | 14.8.0 |
| 2020-12 | RAN#90 | R5-206452 | 0095 | 1 | F | Update of MCPTT TC 6.2.8 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206453 | 0096 | 1 | F | Update of MCPTT TC 6.2.11 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206454 | 0097 | 1 | F | Update of MCPTT TC 6.2.16 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206455 | 0098 | 1 | F | Update of MCPTT TC 6.2.17 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206456 | 0099 | 1 | F | Update of MCPTT TC 7.2.1 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206457 | 0100 | 1 | F | Correction to MCPTT Test Case 6.1.1.1 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206458 | 0101 | 1 | F | Correction to MCPTT Test Case 6.1.1.11 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206459 | 0102 | 1 | F | Correction to MCPTT Test Case 6.1.1.13 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206460 | 0103 | 1 | F | Correction to MCPTT Test Case 6.1.1.2 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206461 | 0104 | 1 | F | Correction to MCPTT Test Case 6.1.1.4 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206462 | 0105 | 1 | F | Correction to MCPTT Test Case 6.1.1.7 | 14.9.0 |
| 2020-12 | RAN#90 | R5-206463 | 0106 | 1 | F | 5.3 Test case corrections | 14.9.0 |
| 2020-12 | RAN#90 | R5-206464 | 0107 | 1 | F | Update of MCPTT TC 6.1.1.3 | 14.9.0 |
| 2021-01 | RAN#90 | - | - | - | - | re-implementation of lost void-ed specific message contents of R5-204536, R5-204537, R5-204538, and R5-204539 | 14.9.1 |
| 2021-01 | RAN#90 | R5-204540 | 0093 | 1 | F | re-implementation of lost changes of R5-204540 | 14.9.1 |
| 2021-01 | RAN#90 | R5-204541 | 0094 | 1 | F | re-implementation of lost changes of R5-204541 | 14.9.1 |
| 2021-03 | RAN#91 | R5-210222 | 0108 | - | F | Correction to MCPTT Test Case 5.1 | 14.10.0 |
| 2021-03 | RAN#91 | R5-210227 | 0113 | - | F | Correction to MCPTT Test Case 6.1.1.11 | 14.10.0 |
| 2021-03 | RAN#91 | R5-210228 | 0114 | - | F | Correction to MCPTT Test Case 6.1.1.12 | 14.10.0 |
| 2021-03 | RAN#91 | R5-210229 | 0115 | - | F | Correction to MCPTT Test Case 6.1.1.13 | 14.10.0 |
| 2021-03 | RAN#91 | R5-210230 | 0116 | - | F | Correction to MCPTT Test Case 6.1.1.14 | 14.10.0 |

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| 2021-03 | RAN#91 | R5-210232 | 0118 | - | F | Correction to MCPTT Test Case 6.1.1.3 | 14.10.0 |
| 2021-03 | RAN#91 | R5-210235 | 0121 | - | F | Correction to MCPTT Test Case 6.1.1.9 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211521 | 0109 | 1 | F | Correction to MCPTT Test Case 5.3 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211522 | 0110 | 1 | F | Correction to MCPTT Test Case 5.4 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211523 | 0111 | 1 | F | Correction to MCPTT Test Case 6.1.1.1 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211524 | 0112 | 1 | F | Correction to MCPTT Test Case 6.1.1.10 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211525 | 0117 | 1 | F | Correction to MCPTT Test Case 6.1.1.2 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211526 | 0119 | 1 | F | Correction to MCPTT Test Case 6.1.1.5 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211527 | 0120 | 1 | F | Correction to MCPTT Test Case 6.1.1.8 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211528 | 0122 | 1 | F | Correction to MCPTT Test Case 6.1.2.10 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211529 | 0123 | 1 | F | Correction to MCPTT Test Case 6.1.2.11 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211530 | 0124 | 1 | F | Correction to MCPTT Test Case 6.1.2.12 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211531 | 0125 | 1 | F | Correction to MCPTT Test Case 6.1.2.7 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211532 | 0126 | 1 | F | Correction to MCPTT Test Case 6.1.2.8 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211533 | 0127 | 1 | F | Correction to MCPTT Test Case 6.1.2.9 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211534 | 0128 | 1 | F | Correction to MCPTT Test Case 6.2.1 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211535 | 0129 | 1 | F | Correction to MCPTT Test Case 6.2.14 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211536 | 0130 | 1 | F | Correction to MCPTT Test Case 6.2.15 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211537 | 0131 | 1 | F | Correction to MCPTT Test Case 6.2.16 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211538 | 0132 | 1 | F | Correction to MCPTT Test Case 6.2.17 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211539 | 0133 | 1 | F | Correction to MCPTT Test Case 6.2.2 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211540 | 0134 | 1 | F | Correction to MCPTT Test Case 6.2.3 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211541 | 0135 | 1 | F | Correction to MCPTT Test Case 6.2.4 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211542 | 0136 | 1 | F | Correction to MCPTT Test Case 6.2.5 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211543 | 0137 | 1 | F | Correction to MCPTT Test Case 6.2.6 | 14.10.0 |
| 2021-03 | RAN#91 | R5-211544 | 0138 | 1 | F | Correction to MCPTT Test Case 6.2.7 | 14.10.0 |
| 2021-06 | RAN#92 | R5-212310 | 0151 | - | F | Correction to MCPTT Test Case 6.1.1.10 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212311 | 0152 | - | F | Correction to MCPTT Test Case 6.1.1.14 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212312 | 0153 | - | F | Correction to MCPTT Test Case 6.1.1.15 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212313 | 0154 | - | F | Correction to MCPTT Test Case 6.1.1.16 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212314 | 0155 | - | F | Correction to MCPTT Test Case 6.1.1.17 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212315 | 0156 | - | F | Correction to MCPTT Test Case 6.1.1.18 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212318 | 0159 | - | F | Correction to MCPTT Test Case 6.1.1.6 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212319 | 0160 | - | F | Correction to MCPTT Test Case 6.1.1.7 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212320 | 0161 | - | F | Correction to MCPTT Test Case 6.1.1.8 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212321 | 0162 | - | F | Correction to MCPTT Test Case 6.1.1.9 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212323 | 0164 | - | F | Correction to MCPTT Test Case 6.1.2.12 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212324 | 0165 | - | F | Correction to MCPTT Test Case 6.1.2.2 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212325 | 0166 | - | F | Correction to MCPTT Test Case 6.1.2.7 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212326 | 0167 | - | F | Correction to MCPTT Test Case 6.2.1 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212328 | 0169 | - | F | Correction to MCPTT Test Case 6.2.11 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212329 | 0170 | - | F | Correction to MCPTT Test Case 6.2.12 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212330 | 0171 | - | F | Correction to MCPTT Test Case 6.2.13 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212331 | 0172 | - | F | Correction to MCPTT Test Case 6.2.14 | 14.11.0 |
| 2021-06 | RAN#92 | R5-212333 | 0174 | - | F | Correction to MCPTT Test Case 6.2.8 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213658 | 0147 | 1 | F | Correction to MCPTT Test Case 5.2 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213659 | 0148 | 1 | F | Correction to MCPTT Test Case 5.4 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213660 | 0150 | 1 | F | Correction to MCPTT Test Case 6.1.1.1 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213661 | 0157 | 1 | F | Correction to MCPTT Test Case 6.1.1.2 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213662 | 0158 | 1 | F | Correction to MCPTT Test Case 6.1.1.5 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213663 | 0163 | 1 | F | Correction to MCPTT Test Case 6.1.2.11 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213664 | 0168 | 1 | F | Correction to MCPTT Test Case 6.2.10 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213665 | 0173 | 1 | F | Correction to MCPTT Test Case 6.2.2 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213666 | 0175 | 1 | F | Correction to MCPTT Test Case 6.2.9 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213667 | 0176 | 1 | F | Correction to MCPTT Test Cases 6.2.3 - 6.2.7 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213668 | 0182 | 1 | F | Addition of MCPTT Test Case 6.1.1.21 | 14.11.0 |
| 2021-06 | RAN#92 | R5-213255 | 0177 | - | F | Addition of MCPTT Test Case 6.1.1.19 | 15.0.0 |
| 2021-06 | RAN#92 | R5-213590 | 0140 | 1 | F | Addition of new MCPTT test case 6.2.20 On-network / First-to-answer call / On-demand session / Client Originated (CO) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213591 | 0141 | 1 | F | Addition of new MCPTT test case 6.2.21 On-network / First-to-answer call / On-demand session / Client Terminated (CT) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213592 | 0142 | 1 | F | Addition of new MCPTT test case 6.2.22 On-network / First-to-answer call / Pre-established session / Client Originated (CO) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213593 | 0143 | 1 | F | Addition of new MCPTT test case 6.2.23 On-network / First-to-answer call / Pre-established session / Client Terminated (CT) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213594 | 0144 | 1 | F | Addition of new MCPTT test case 6.2.24 On-network / Remotely initiated private call / Client Originated (CO) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213595 | 0145 | 1 | F | Addition of new MCPTT test case 6.2.25 On-network / Remotely initiated private call / On-demand session / Client Terminated (CT) | 15.0.0 |
| 2021-06 | RAN#92 | R5-213596 | 0146 | 1 | F | Addition of new MCPTT test case 6.2.26 On-network / Remotely initiated private call / Pre-established session / Client Terminated (CT) | 15.0.0 |

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|---------|--------|-----------|------|---|---|---|--------|
| 2021-06 | RAN#92 | R5-213597 | 0178 | 1 | F | Addition of MCPTT Test Case 5.8 | 15.0.0 |
| 2021-06 | RAN#92 | R5-213598 | 0179 | 1 | F | Addition of MCPTT Test Case 6.1.1.20 | 15.0.0 |
| 2021-06 | RAN#92 | R5-213599 | 0180 | 1 | F | Addition of MCPTT Test Case 6.1.2.13 | 15.0.0 |
| 2021-06 | RAN#92 | R5-213600 | 0181 | 1 | F | Addition of MCPTT Test Case 6.1.2.14 | 15.0.0 |
| 2021-09 | RAN#93 | R5-214653 | 0183 | - | F | Correction of MCPTT test case 5.2 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214654 | 0184 | - | F | Correction of MCPTT test case 5.3 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214655 | 0185 | - | F | Correction of MCPTT test case 5.4 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214661 | 0191 | - | F | Correction of MCPTT test case 6.1.1.19 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214662 | 0192 | - | F | Correction of MCPTT test case 6.1.1.20 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214664 | 0194 | - | F | Correction of MCPTT test case 6.1.1.3 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214665 | 0195 | - | F | Correction of MCPTT test case 6.1.2.13 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214666 | 0196 | - | F | Correction of MCPTT test case 6.1.2.14 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214667 | 0197 | - | F | Correction of MCPTT test case 6.2.12 | 15.1.0 |
| 2021-09 | RAN#93 | R5-214668 | 0198 | - | F | Correction of MCPTT test case 6.2.14 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215601 | 0208 | - | F | Addition of MCPTT Test Case 5.7 Configuration / Subscription to group dynamic data / De-subscribe | 15.1.0 |
| 2021-09 | RAN#93 | R5-215748 | 0186 | 1 | F | Correction of MCPTT test case 5.5 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215749 | 0187 | 1 | F | Correction of MCPTT test case 5.8 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215750 | 0189 | 1 | F | Correction of MCPTT test case 6.1.1.15 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215751 | 0190 | 1 | F | Correction of MCPTT test case 6.1.1.16 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215752 | 0193 | 1 | F | Correction of MCPTT test case 6.1.1.21 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215753 | 0199 | 1 | F | Correction of MCPTT test case 6.2.15 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215754 | 0200 | 1 | F | Correction of MCPTT test case 6.2.16 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215755 | 0201 | 1 | F | Correction of MCPTT test case 6.2.17 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215756 | 0202 | 1 | F | Correction of MCPTT test case 6.2.20 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215757 | 0203 | 1 | F | Correction of MCPTT test case 6.2.21 | 15.1.0 |
| 2021-09 | RAN#93 | R5-215758 | 0204 | 1 | F | Correction of MCPTT test case 6.2.22 | 15.1.0 |
| 2021-09 | RAN#93 | R5-216283 | 0207 | 1 | F | Addition of MCPTT Test Case 5.6 Configuration / Download CSK | 15.1.0 |
| 2021-09 | RAN#93 | R5-216342 | 0206 | 1 | F | Correction of MCPTT test case 6.3.2 | 15.1.0 |
| 2021-12 | RAN#94 | R5-216644 | 0211 | - | F | Correction of MCPTT Test Case 5.6 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216646 | 0213 | - | F | Correction of MCPTT Test Case 6.1.1.19 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216647 | 0214 | - | F | Correction of MCPTT Test Case 6.1.1.20 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216648 | 0215 | - | F | Correction of MCPTT Test Case 6.1.2.13 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216649 | 0216 | - | F | Correction of MCPTT Test Case 6.1.2.14 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216650 | 0217 | - | F | Correction of MCPTT Test Case 6.2.20 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216651 | 0218 | - | F | Correction of MCPTT Test Case 6.2.21 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216652 | 0219 | - | F | Correction of MCPTT Test Case 6.2.22 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216705 | 0224 | - | F | Correction of MCPTT test case 5.1 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216706 | 0225 | - | F | Correction of MCPTT Test Case 5.2 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216708 | 0227 | - | F | Correction of MCPTT Test Case 5.4 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216710 | 0229 | - | F | Correction of MCPTT Test Case 6.1.1.10 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216711 | 0230 | - | F | Correction of MCPTT Test Case 6.1.1.11 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216712 | 0231 | - | F | Correction of MCPTT Test Case 6.1.1.12 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216713 | 0232 | - | F | Correction of MCPTT Test Case 6.1.1.13 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216714 | 0233 | - | F | Correction of MCPTT Test Case 6.1.1.14 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216716 | 0235 | - | F | Correction of MCPTT Test Case 6.1.1.16 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216717 | 0236 | - | F | Correction of MCPTT Test Case 6.1.1.18 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216719 | 0238 | - | F | Correction of MCPTT Test Case 6.1.1.21 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216720 | 0239 | - | F | Correction of MCPTT Test Case 6.1.1.3 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216721 | 0240 | - | F | Correction of MCPTT Test Case 6.1.1.4 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216722 | 0241 | - | F | Correction of MCPTT Test Case 6.1.1.5 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216723 | 0242 | - | F | Correction of MCPTT Test Case 6.1.1.6 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216724 | 0243 | - | F | Correction of MCPTT Test Case 6.1.1.7 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216725 | 0244 | - | F | Correction of MCPTT Test Case 6.1.1.8 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216726 | 0245 | - | F | Correction of MCPTT Test Case 6.1.1.9 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216727 | 0246 | - | F | Correction of MCPTT Test Case 6.1.2.10 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216728 | 0247 | - | F | Correction of MCPTT Test Case 6.1.2.11 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216729 | 0248 | - | F | Correction of MCPTT Test Case 6.1.2.12 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216730 | 0249 | - | F | Correction of MCPTT Test Case 6.1.2.2 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216731 | 0250 | - | F | Correction of MCPTT Test Case 6.1.2.7 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216732 | 0251 | - | F | Correction of MCPTT Test Case 6.1.2.8 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216733 | 0252 | - | F | Correction of MCPTT Test Case 6.1.2.9 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216734 | 0253 | - | F | Correction of MCPTT Test Case 6.2.1 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216735 | 0254 | - | F | Correction of MCPTT Test Case 6.2.10 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216736 | 0255 | - | F | Correction of MCPTT Test Case 6.2.11 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216739 | 0258 | - | F | Correction of MCPTT Test Case 6.2.14 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216740 | 0259 | - | F | Correction of MCPTT Test Case 6.2.15 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216741 | 0260 | - | F | Correction of MCPTT Test Case 6.2.16 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216742 | 0261 | - | F | Correction of MCPTT Test Case 6.2.17 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216743 | 0262 | - | F | Correction of MCPTT Test Case 6.2.2 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216744 | 0263 | - | F | Correction of MCPTT Test Case 6.2.3 | 15.2.0 |

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| 2021-12 | RAN#94 | R5-216745 | 0264 | - | F | Correction of MCPTT Test Case 6.2.4 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216746 | 0265 | - | F | Correction of MCPTT Test Case 6.2.5 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216747 | 0266 | - | F | Correction of MCPTT Test Case 6.2.6 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216748 | 0267 | - | F | Correction of MCPTT Test Case 6.2.7 | 15.2.0 |
| 2021-12 | RAN#94 | R5-216749 | 0268 | - | F | Correction of MCPTT Test Case 6.2.8 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217633 | 0271 | - | F | New Test Case - 6.4.2 MBMS Multi Talker | 15.2.0 |
| 2021-12 | RAN#94 | R5-217634 | 0272 | - | F | Update of Clause 2 References | 15.2.0 |
| 2021-12 | RAN#94 | R5-217778 | 0209 | 1 | F | TC 6.1.1.5 MCPTT Corrections | 15.2.0 |
| 2021-12 | RAN#94 | R5-217779 | 0210 | 1 | F | TC 6.1.1.10 Corrections | 15.2.0 |
| 2021-12 | RAN#94 | R5-217906 | 0220 | 1 | F | Correction of MCPTT Test Case 6.2.23 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217907 | 0273 | 1 | F | New Test Case - 6.1.3.1 Conference Event Package | 15.2.0 |
| 2021-12 | RAN#94 | R5-217908 | 0274 | 1 | F | New Test Case - 6.1.4.1 Remote Change of a Group - CO | 15.2.0 |
| 2021-12 | RAN#94 | R5-217909 | 0275 | 1 | F | New Test Case - 6.1.4.2 Remote Change of a Group - CT | 15.2.0 |
| 2021-12 | RAN#94 | R5-217910 | 0276 | 1 | F | New Test Case - 6.1.5.1 Remote Initiated Group Call - CO | 15.2.0 |
| 2021-12 | RAN#94 | R5-217911 | 0277 | 1 | F | New Test Case - 6.1.5.2 Remote Initiated Group Call - CT | 15.2.0 |
| 2021-12 | RAN#94 | R5-217912 | 0278 | 1 | F | New Test Case - 6.2.18 Private Call | 15.2.0 |
| 2021-12 | RAN#94 | R5-217913 | 0279 | 1 | F | New Test Case - 6.2.19 Private Call | 15.2.0 |
| 2021-12 | RAN#94 | R5-217969 | 0228 | 1 | F | Correction of MCPTT Test Case 6.1.1.1 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217970 | 0237 | 1 | F | Correction of MCPTT Test Case 6.1.1.2 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217971 | 0256 | 1 | F | Correction of MCPTT Test Case 6.2.12 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217976 | 0212 | 1 | F | Correction of MCPTT Test Case 5.7 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217977 | 0221 | 1 | F | Correction of MCPTT Test Case 6.2.24 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217978 | 0222 | 1 | F | Correction of MCPTT Test Case 6.2.25 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217979 | 0223 | 1 | F | Correction of MCPTT Test Case 6.2.26 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217980 | 0226 | 1 | F | Correction of MCPTT Test Case 5.3 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217981 | 0234 | 1 | F | Correction of MCPTT Test Case 6.1.1.15 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217982 | 0257 | 1 | F | Correction of MCPTT Test Case 6.2.13 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217983 | 0269 | 1 | F | Correction of MCPTT Test Case 6.2.9 | 15.2.0 |
| 2021-12 | RAN#94 | R5-217984 | 0270 | 1 | F | Correction of MCPTT Test Case 6.3.2 | 15.2.0 |
| 2022-03 | RAN#95 | R5-220482 | 0280 | - | F | Correction of MCPTT Test Case 5.2 | 15.3.0 |
| 2022-03 | RAN#95 | R5-220484 | 0282 | - | F | Correction of MCPTT Test Case 5.5 | 15.3.0 |
| 2022-03 | RAN#95 | R5-220486 | 0284 | - | F | MCPTT condition clarification | 15.3.0 |
| 2022-03 | RAN#95 | R5-222030 | 0283 | 1 | F | Correction of Test Cases in clause 6 | 15.3.0 |
| 2022-06 | RAN#96 | R5-222363 | 0293 | - | F | Correction of test case 6.1.3.1 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222364 | 0294 | - | F | Correction of test case 6.1.4.1 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222365 | 0295 | - | F | Correction of test case 6.1.4.2 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222366 | 0296 | - | F | Correction of test case 6.1.5.1 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222367 | 0297 | - | F | Correction of test case 6.1.5.2 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222368 | 0298 | - | F | Correction of test case 6.2.18 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222369 | 0299 | - | F | Correction of test case 6.2.19 | 15.4.0 |
| 2022-06 | RAN#96 | R5-222401 | 0300 | - | F | Common corrections of MCPTT private call test cases | 15.4.0 |
| 2022-06 | RAN#96 | R5-222402 | 0301 | - | F | Correction of MCPTT Test Case 5.3 | 15.4.0 |
| 2022-09 | RAN#97 | R5-223950 | 0302 | - | F | Correction of test case 5.4 | 15.5.0 |
| 2022-09 | RAN#97 | R5-223951 | 0303 | - | F | Correction of test case 5.7 | 15.5.0 |
| 2022-09 | RAN#97 | R5-223952 | 0304 | - | F | Correction of test case 6.3.2 | 15.5.0 |
| 2022-09 | RAN#97 | R5-223953 | 0305 | - | F | Correction of test case 6.4.1 | 15.5.0 |
| 2022-09 | RAN#97 | R5-223954 | 0306 | - | F | Correction of test cases in clause 6.1.1 - Pre-Arranged Group Call | 15.5.0 |
| 2022-09 | RAN#97 | R5-223955 | 0307 | - | F | Correction of test cases in clause 6.1.2 - Chat Group Calls | 15.5.0 |
| 2022-09 | RAN#97 | R5-223956 | 0308 | - | F | Correction of test cases in clause 6.1.3 - Conference Event Package | 15.5.0 |
| 2022-09 | RAN#97 | R5-223957 | 0309 | - | F | Correction of test cases in clause 6.1.4 - Remote Change of Selected Group | 15.5.0 |
| 2022-09 | RAN#97 | R5-223958 | 0310 | - | F | Correction of test cases in clause 6.1.5 - Remotely initiated group call | 15.5.0 |
| 2022-09 | RAN#97 | R5-223959 | 0311 | - | F | Correction of test cases in clause 6.2 - Private Calls | 15.5.0 |
| 2022-12 | RAN#98 | R5-227615 | 0313 | 1 | F | Correction of clause 6.2 - Private Calls | 15.6.0 |
| 2022-12 | RAN#98 | R5-227616 | 0314 | 1 | F | Correction of test case 6.1.5.2 | 15.6.0 |
| 2022-12 | RAN#98 | R5-227617 | 0315 | 1 | F | Correction of test cases in clause 5 - MCPTT Client Configuration | 15.6.0 |
| 2023-03 | RAN#99 | R5-231941 | 0316 | 1 | F | Correction of clause 5 - MCPTT Client Configuration | 15.7.0 |
| 2023-03 | RAN#99 | R5-231942 | 0317 | 1 | F | Correction of clause 6.1.1 - Pre-arranged Group Call | 15.7.0 |
| 2023-03 | RAN#99 | R5-231943 | 0318 | 1 | F | Correction of clause 6.1.2 - Chat Group Calls | 15.7.0 |
| 2023-03 | RAN#99 | R5-231944 | 0319 | 1 | F | Correction of clause 6.1.3 - Conference Event Package | 15.7.0 |
| 2023-03 | RAN#99 | R5-231945 | 0320 | 1 | F | Correction of clause 6.1.4 - Remote Change of Selected Group | 15.7.0 |
| 2023-03 | RAN#99 | R5-231946 | 0321 | 1 | F | Correction of clause 6.1.5 - Remotely initiated group call | 15.7.0 |
| 2023-03 | RAN#99 | R5-231947 | 0322 | 1 | F | Correction of clause 6.2 - Private Calls | 15.7.0 |
| 2023-03 | RAN#99 | R5-231948 | 0323 | 1 | F | Correction of clause 6.3 - Location | 15.7.0 |
| 2023-03 | RAN#99 | R5-231949 | 0324 | 1 | F | Correction of clause 6.4 - MBMS | 15.7.0 |
| 2023-03 | RAN#99 | R5-232000 | 0325 | 1 | F | Correction of clause 7 - MCPTT Client off-network operation | 15.7.0 |

History

| Document history | | |
|-------------------------|----------------|-------------|
| V15.0.0 | September 2021 | Publication |
| V15.1.0 | October 2021 | Publication |
| V15.2.0 | March 2022 | Publication |
| V15.3.0 | May 2022 | Publication |
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| V15.5.0 | October 2022 | Publication |
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