# ETSI TS 136 579-1 V14.5.0 (2020-01)


**LTE;**
**Mission Critical (MC) services over LTE;**
**Part 1: Common test environment**
**(3GPP TS 36.579-1 version 14.5.0 Release 14)**


Reference
RTS/TSGR-0536579-1ve50

Keywords
LTE

***ETSI***

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 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

# Legal Notice

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

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

# Modal verbs terminology

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

# Contents

Intellectual Property Rights ..... 2
Legal Notice ..... 2
Modal verbs terminology ..... 2
Foreword ..... 9
1 Scope ..... 10
2 References ..... 10
3 Definitions, symbols and abbreviations ..... 14
3.1 Definitions ..... 14
3.2 Symbols ..... 15
3.3 Abbreviations ..... 15
4 General ..... 16
4.1 MCPTT Conformance testing test points overview ..... 16
4.2 MCPTT Conformance testing test environment overview ..... 17
4.3 MCPTT Conformance testing players and roles assumptions ..... 20
4.4 References to TS 33.179 and TS 33.180 ..... 21
5 Common Test Environment ..... 21
5.1 General ..... 21
5.2 Reference test conditions ..... 21
5.2.1 General ..... 21
5.2.2 On-network ..... 21
5.2.3 Off-network ..... 21
5.3 Generic test procedures for UE MCS operation ..... 22
5.3.1 General ..... 22
5.3.2 Generic Test Procedure for MCPTT Authorization/Configuration and Key Generation ..... 22
5.3.2A Generic Test Procedure for MCVideo Authorization/Configuration and Key Generation ..... 31
5.3.2B Generic Test Procedure for MCData Authorization/Configuration and Key Generation ..... 31
5.3.3 Generic Test Procedure for MCPTT pre-established session establishment CO ..... 31
5.3.3A Generic Test Procedure for MCVideo pre-established session establishment CO ..... 33
5.4 Generic test procedures for UE operation over EUTRA/EPS ..... 33
5.4.1 General ..... 33
5.4.1A UE APN/PDN support assumptions ..... 33
5.4.2 Generic Test Procedure for MCPTT UE registration ..... 35
5.4.2A Generic Test Procedure for MCVideo UE registration ..... 40
5.4.2B Generic Test Procedure for MCData UE registration ..... 40
5.4.3 Generic Test Procedure for MCPTT CO communication in E-UTRA ..... 41
5.4.3A Generic Test Procedure for MCVideo CO communication in E-UTRA ..... 42
5.4.3B Generic Test Procedure for MCData CO communication in E-UTRA ..... 42
5.4.4 Generic Test Procedure for MCPTT CT communication in E-UTRA ..... 43
5.4.4A Generic Test Procedure for MCVideo CT communication in E-UTRA ..... 45
5.4.4B Generic Test Procedure for MCData CT communication in E-UTRA ..... 45
5.4.5 Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment ..... 45
5.4.6 Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment ..... 47
5.4.7 Generic Test Procedure for MCPTT communication over ProSe direct one-to-one communication out of E-UTRA coverage - release by the SS ..... 50
5.4.8 Generic Test Procedure for MCPTT communication over ProSe direct one-to-one communication out of E-UTRA coverage - release by the UE ..... 51
5.4.9 Generic Test Procedure for MCPTT communication in E-UTRA / Change of cells ..... 52
5.4.10 Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery ..... 54

5.4.11 Generic Test Procedure for MCPTT 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 ..... 57
5.4.12 Generic Test Procedure for MCPTT communication over MBMS ..... 59
5.5 Default message and other information elements content ..... 60
5.5.1 General ..... 60
5.5.2 Default SIP message and other information elements ..... 61
5.5.2.1 SIP ACK ..... 61
5.5.2.1.1 SIP ACK from the UE ..... 61
5.5.2.1.2 SIP ACK from the SS ..... 62
5.5.2.2 SIP BYE ..... 63
5.5.2.2.1 SIP BYE from the UE ..... 63
5.5.2.2.2 SIP BYE from the SS ..... 66
5.5.2.3 SIP CANCEL ..... 67
5.5.2.4 SIP INFO ..... 67
5.5.2.5 SIP INVITE ..... 69
5.5.2.5.1 SIP INVITE from the UE ..... 69
5.5.2.5.2 SIP INVITE from the SS ..... 76
5.5.2.6 Void ..... 83
5.5.2.7 SIP MESSAGE ..... 83
5.5.2.7.1 SIP MESSAGE from the UE ..... 83
5.5.2.7.2 SIP MESSAGE from the SS ..... 86
5.5.2.8 SIP NOTIFY ..... 89
5.5.2.9 SIP OPTIONS ..... 91
5.5.2.10 SIP PRACK ..... 95
5.5.2.10.1 SIP PRACK from the UE ..... 95
5.5.2.10.2 SIP PRACK from the SS ..... 97
5.5.2.11 SIP PUBLISH ..... 98
5.5.2.12 SIP REFER ..... 102
5.5.2.13 SIP REGISTER ..... 108
5.5.2.14 SIP SUBSCRIBE ..... 114
5.5.2.15 SIP UPDATE ..... 120
5.5.2.15.1 SIP UPDATE from the UE ..... 120
5.5.2.15.2 SIP UPDATE from the SS ..... 123
5.5.2.16 SIP 1xx ..... 126
5.5.2.16.1 SIP 100 (Trying) ..... 126
5.5.2.16.2 SIP 180 (Ringing) ..... 127
5.5.2.16.2.1 SIP 180 (Ringing) from the UE ..... 127
5.5.2.16.2.2 SIP 180 (Ringing) from the SS ..... 129
5.5.2.16.3 SIP 183 (Session Progress) ..... 131
5.5.2.16.3.1 SIP 183 (Session Progress) from the UE ..... 131
5.5.2.16.3.2 SIP 183 (Session Progress) from the SS ..... 134
5.5.2.17 SIP 2xx ..... 137
5.5.2.17.1 SIP 200 (OK) ..... 137
5.5.2.17.1.1 SIP 200 (OK) from the UE ..... 137
5.5.2.17.1.2 SIP 200 (OK) from the SS ..... 140
5.5.2.18 SIP 3xx ..... 143
5.5.2.18.1 SIP 302 (Moved Temporarily) ..... 143
5.5.2.19 SIP 4xx ..... 144
5.5.2.19.1 SIP 403 (Forbidden) ..... 144
5.5.2.19.2 SIP 404 (Not Found) ..... 144
5.5.2.19.3 SIP 423 (Interval Too Brief) ..... 144
5.5.2.19.4 SIP 480 (Temporarily unavailable) ..... 145
5.5.2.19.5 SIP 486 (Busy Here) ..... 145
5.5.2.19.6 SIP 488 (Not Acceptable Here) ..... 146
5.5.2.19.7 SIP 401 (Unauthorized) ..... 147
5.5.2.20 SIP 5xx ..... 149
5.5.2.20.1 SIP 500 (Server Internal Error) ..... 149
5.5.2.21 SIP 6xx ..... 149
5.5.2.21.1 SIP 606 (Not Acceptable) ..... 149
5.5.3 Default SDP message and other information elements ..... 150
5.5.3.1 SDP Message ..... 150

5.5.3.1.1 SDP Message from the UE ..... 150
- MCPTT ..... 150
- MCVideo ..... 153
- MCData ..... 158
5.5.3.1.2 SDP Message from the SS ..... 159
- MCPTT ..... 159
- MCVideo ..... 161
- MCData ..... 166
5.5.3.1.3 SDP Message from the UE - Off-network ..... 167
- MCPTT ..... 167
- MCVideo ..... 169
- MCData ..... 173
5.5.3.1.4 SDP Message from the SS - Off-network ..... 174
- MCPTT ..... 174
- MCVideo ..... 176
- MCData ..... 180
5.5.3.2 MCS Info Lists ..... 181
5.5.3.2.1 MCS Info Lists from the UE ..... 181
- MCPTT ..... 181
- MCVideo ..... 183
- MCData ..... 185
5.5.3.2.2 MCPTT-Info from the SS ..... 186
- MCPTT ..... 186
- MCVideo ..... 186
- MCData ..... 189
5.5.3.3 Resource-lists ..... 190
5.5.3.3.1 Resource-lists from the UE ..... 190
- MCPTT ..... 190
- MCVideo ..... 191
- MCData ..... 192
5.5.3.3.2 Resource-lists from the SS ..... 192
- MCPTT ..... 192
- MCVideo ..... 192
- MCData ..... 192
5.5.3.4 Location-info ..... 193
5.5.3.4.1 Location-info (Report from the UE) ..... 193
- MCPTT ..... 193
- MCVideo ..... 196
5.5.3.4.2 Location-info (Configuration sent by the SS) ..... 199
- MCPTT ..... 199
- MCVideo ..... 202
5.5.3.4.3 Location-info (Request sent by the SS) ..... 204
- MCPTT ..... 204
- MCVideo ..... 204
5.5.3.5 PIDF ..... 205
- MCPTT ..... 205
- MCVideo ..... 205
- MCData ..... 206
5.5.3.6 SIMPLE-FILTER ..... 207
- MCPTT ..... 207
- MCVideo ..... 208
- MCData ..... 209
5.5.3.7 AFFILIATION-COMMAND ..... 209
- MCPTT ..... 209
- MCVideo ..... 209
- MCData ..... 210
5.5.3.8 SDS Signaling Payload ..... 210
5.5.3.8.1 SDS Signaling Payload from the UE ..... 210
5.5.3.8.2 SDS Signaling Payload from the SS ..... 211
5.5.3.9 MCData Data Payload ..... 211
5.5.3.10 MCData Protected Payload Message ..... 212
5.5.4 Default HTTP message and other information elements ..... 212

5.5.4.1 General ..... 212
5.5.4.2 GET ..... 213
5.5.4.3 POST ..... 214
5.5.4.4 PUT ..... 215
5.5.4.5 DELETE ..... 216
5.5.4.6 HTTP 200 (OK) ..... 217
5.5.4.7 HTTP 201 (Created) ..... 219
5.5.4.8 HTTP 302 (Found) ..... 219
5.5.4.9 HTTP 409 (Conflict) ..... 220
5.5.4.10 HTTP Message Bodies ..... 220
5.5.4.10.1 Authentication Request ..... 220
5.5.4.10.2 Authentication Response ..... 221
5.5.4.10.3 Token Request ..... 221
5.5.4.10.4 Token Response ..... 222
5.5.4.10.5 KMS Initialize ..... 225
5.5.4.10.6 KMS Certificate ..... 226
5.5.4.10.7 KMS KeyProvision ..... 227
5.5.4.10.8 KMS Key Set ..... 228
5.5.5 Default MCPTT call control Off-network messages and other information elements ..... 231
5.5.5.1 GROUP CALL PROBE ..... 231
5.5.5.2 GROUP CALL ANNOUNCEMENT ..... 232
5.5.5.2.1 GROUP CALL ANNOUNCEMENT from the UE ..... 232
5.5.5.2.2 GROUP CALL ANNOUNCEMENT from the SS ..... 233
5.5.5.3 GROUP CALL ACCEPT ..... 234
5.5.5.3.1 GROUP CALL ACCEPT from the UE ..... 234
5.5.5.3.2 GROUP CALL ACCEPT from the SS ..... 234
5.5.5.4 GROUP CALL EMERGENCY END ..... 235
5.5.5.4.1 GROUP CALL EMERGENCY END from the UE ..... 235
5.5.5.4.2 GROUP CALL EMERGENCY END from the SS ..... 235
5.5.5.5 GROUP CALL IMMINENT PERIL END ..... 236
5.5.5.5.1 GROUP CALL IMMINENT PERIL END from the UE ..... 236
5.5.5.5.2 GROUP CALL IMMINENT PERIL END from the SS ..... 236
5.5.5.6 GROUP CALL BROADCAST ..... 237
5.5.5.6.1 GROUP CALL BROADCAST from the UE ..... 237
5.5.5.6.2 GROUP CALL BROADCAST from the SS ..... 237
5.5.5.7 GROUP CALL BROADCAST END ..... 237
5.5.5.7.1 GROUP CALL BROADCAST END from the UE ..... 237
5.5.5.7.2 GROUP CALL BROADCAST END from the SS ..... 238
5.5.5.8 PRIVATE CALL SETUP REQUEST ..... 238
5.5.5.8.1 PRIVATE CALL SETUP REQUEST from the UE ..... 238
5.5.5.8.2 PRIVATE CALL SETUP REQUEST from the SS ..... 238
5.5.5.9 PRIVATE CALL RINGING ..... 239
5.5.5.10 PRIVATE CALL ACCEPT ..... 239
5.5.5.11 PRIVATE CALL REJECT ..... 239
5.5.5.11.1 PRIVATE CALL REJECT from the UE ..... 239
5.5.5.11.2 PRIVATE CALL REJECT from the SS ..... 240
5.5.5.12 PRIVATE CALL RELEASE ..... 240
5.5.5.13 PRIVATE CALL RELEASE ACK ..... 240
5.5.5.14 PRIVATE CALL ACCEPT ACK ..... 241
5.5.5.15 PRIVATE CALL EMERGENCY CANCEL ..... 241
5.5.5.15.1 PRIVATE CALL EMERGENCY CANCEL from the UE ..... 241
5.5.5.15.2 PRIVATE CALL EMERGENCY CANCEL from the SS ..... 241
5.5.5.16 PRIVATE CALL EMERGENCY CANCEL ACK ..... 242
5.5.5.16.1 PRIVATE CALL EMERGENCY CANCEL ACK from the UE ..... 242
5.5.5.16.2 PRIVATE CALL EMERGENCY CANCEL ACK from the SS ..... 242
5.5.5.17 GROUP EMERGENCY ALERT ..... 242
5.5.5.17.1 GROUP EMERGENCY ALERT from the UE ..... 242
5.5.5.17.2 GROUP EMERGENCY ALERT from the SS ..... 242
5.5.5.18 GROUP EMERGENCY ALERT ACK ..... 243
5.5.5.18.1 GROUP EMERGENC ALERT ACK from the UE ..... 243
5.5.5.18.2 GROUP EMERGENC ALERT ACK from the SS ..... 243
5.5.5.19 GROUP EMERGENCY ALERT CANCEL ..... 243

5.5.5.19.1 GROUP EMERGENCY ALERT CANCEL from the UE ....243
5.5.5.19.2 GROUP EMERGENCY ALERT CANCEL from the SS ....243
5.5.5.20 GROUP EMERGENCY ALERT CANCEL ACK ....243
5.5.5.20.1 GROUP EMERGENCY ALERT CANCEL ACK from the UE ....243
5.5.5.20.2 GROUP EMERGENCY ALERT CANCEL ACK from the SS ....244
5.5.6 Default MCPTT media plane control messages and other information elements ....244
5.5.6.1 General ....244
5.5.6.2 Floor Request ....245
5.5.6.3 Floor Granted ....246
5.5.6.4 Floor Deny ....247
5.5.6.5 Floor Release ....248
5.5.6.6 Floor Idle ....249
5.5.6.7 Floor Taken ....250
5.5.6.8 Floor Revoke ....251
5.5.6.9 Floor Queue Position Request ....252
5.5.6.10 Floor Queue Position Info ....253
5.5.6.11 Floor Ack ....254
5.5.6.12 Connect ....255
5.5.6.13 Disconnect ....256
5.5.6.14 Acknowledgement ....256
5.5.6.15 Map Group To Bearer ....257
5.5.6.16 Unmap Group To Bearer ....259
5.5.7 Default MCPTT group management messages and other information elements ....259
5.5.7.1 MCPTT Group Configuration ....259
5.5.8 Default MCPTT configuration management messages and other information elements ....266
5.5.8.1 MCPTT Initial UE Configuration ....266
5.5.8.2 MCPTT UE Configuration ....272
5.5.8.3 MCPTT User Profile ....273
5.5.8.4 MCPTT Service Configuration ....281
5.5.9 Default miscellaneous messages and other information elements ....285
5.5.9.1 MIKEY-SAKKE I_MESSAGE ....285
- CSK distribution ....285
- Private call ....292
- GMK distribution ....298
5.5.10 Common MCPTT test USIM parameters ....303
5.5.10.1 General ....303
5.5.10.2 Default settings for the Elementary Files (EFs) ....303
5.5.11 Default MCVideo Transmission Control Messages and other Information Elements ....304
5.5.11.1 Transmission Control Specific Messages Sent by the Transmission Participant ....304
5.5.11.1.1 Transmission Request ....304
5.5.11.1.2 Transmission Release ....306
5.5.11.1.3 Queue Position Request ....308
5.5.11.1.4 Receive Media Request ....310
5.5.11.1.5 Transmission Cancel Request ....313
5.5.11.1.6 Remote Transmission Request ....314
5.5.11.1.7 Remote Transmission Cancel Request ....315
5.5.11.2 Transmission Control Specific Messages Sent by the Transmission Control Server ....316
5.5.11.2.1 Transmission Granted ....316
5.5.11.2.2 Transmission Rejected ....317
5.5.11.2.3 Transmission Arbitration Taken ....319
5.5.11.2.4 Transmission Arbitration Release ....322
5.5.11.2.5 Transmission Revoked ....324
5.5.11.2.6 Queue Position Info ....327
5.5.11.2.7 Media Transmission Notification ....328
5.5.11.2.8 Receive Media Response ....330
5.5.11.2.9 Media Reception Notification ....333
5.5.11.2.10 Transmission Cancel Response ....336
5.5.11.2.11 Transmission Cancel Request Notify ....336
5.5.11.2.12 Remote Transmission Response ....337
5.5.11.2.13 Remote Transmission Cancel Response ....337
5.5.11.2.14 Media Reception Override Notification ....338
5.5.11.2.15 Transmission End Notify ....338

5.5.11.2.16 Transmission Idle ....339
5.5.11.3 Transmission control specific messages sent by both the transmission control server and transmission control participant ....340
5.5.11.3.1 Transmission End Request ....340
5.5.11.3.2 Transmission End Response ....341
5.5.11.3.3 Media Reception End Request ....342
5.5.11.3.4 Media Reception End Response ....343
5.5.11.3.5 Transmission Control Ack ....344
5.6 Reference configurations ....345
5.6.1 General ....345
5.6.2 Key material for provisioning of End-to-end communication security ....346
5.6.3 XML schema for MCPTT location information ....347

**Annex A (informative): Change history ....353**

History ....356

# 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:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

The present document is part 1 of a multi-part deliverable covering conformance test specification for Mission Critical Services over LTE consisting of:

**3GPP TS 36.579-1: "Mission Critical (MC) services over LTE; Part 1: Common test environment" (the present document)**

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

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

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

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

3GPP TS 36.579-6 [84]: "Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification"

3GPP TS 36.579-7 [85]: "Mission Critical (MC) services over LTE; Part 7: Mission Critical Data (MCData) User Equipment (UE) Protocol conformance specification"

# 1 Scope

The present document defines the common test environment required for testing Client and Server implementations for compliance to the Mission Critical Services over LTE protocol requirements defined by 3GPP.

It contains definitions of reference conditions and test signals, default messages and other parameters, generic procedures, and, common requirements for test equipment with the goal for facilitating testing in general and test procedures specification in particular. Various parts of its content are referred to from other parts of the Mission Critical Services over LTE protocol conformance testing specification e.g. TS 36.579-2 [2] , TS 36.579-3 [3], 3GPP TS 36.579-6 [84], 3GPP TS 36.579-7 [85].

The present document does not define the common test environment required for testing the implementation of the underlying LTE protocols, i.e. the LTE bearers used for transport of the Mission Critical Services signalling and media. This is defined in TS 36.508 [6] and referred to from the present document whenever needed.

In regard to default messages or other information elements contents, the present document refers to content defined in requirements specifications specified by 3GPP or other organisations.

# 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 36.579-2: "Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification".

[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 36.508: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Common Test Environments for User Equipment (UE) Conformance Testing".

[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) floor 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] Void

[20] Void

[21] Void

[22] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".

[23] IETF RFC 6509 (February 2012): "MIKEY-SAKKE: Sakai-Kasahara Key Encryption in Multimedia Internet KEYing (MIKEY)".

[24] IETF RFC 3830: "MIKEY: Multimedia Internet KEYing".

[25] IETF RFC 6043: "MIKEY-TICKET: Ticket-Based Modes of Key Distribution in Multimedia Internet KEYing (MIKEY)".

[26] IETF RFC 2616: "Hypertext Transfer Protocol -- HTTP/1.1".

[27] IETF RFC 4566 (July 2006): "SDP: Session Description Protocol".

[28] Void

[29] IETF RFC 3841 (August 2004): "Caller Preferences for the Session Initiation Protocol (SIP)".

[30] IETF RFC 4028 (April 2005): "Session Timers in the Session Initiation Protocol (SIP)".

[31] IETF RFC 6050 (November 2010): "A Session Initiation Protocol (SIP) Extension for the Identification of Services".

[32] IETF RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".

[33] IETF RFC 3840 (August 2004): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

[34] IETF RFC 5373 (November 2008): "Requesting Answering Modes for the Session Initiation Protocol (SIP)".

[35] IETF RFC 5366 (October 2008): "Conference Establishment Using Request-Contained Lists in the Session Initiation Protocol (SIP)".

[36] IETF RFC 4488 (May 2006): "Suppression of Session Initiation Protocol (SIP) REFER Method Implicit Subscription".

[37] IETF RFC 4538 (June 2006): "Request Authorization through Dialog Identification in the Session Initiation Protocol (SIP)".

[38] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".

[39] IETF RFC 6665 (July 2012): "SIP-Specific Event Notification".

[40] IETF RFC 4412 (February 2006): "Communications Resource Priority for the Session Initiation Protocol (SIP)".

[41] Void

[42] Void

[43] IETF RFC 3903 (October 2004): "Session Initiation Protocol (SIP) Extension for Event State Publication".

[44] IETF RFC 4567 (July 2006): "Key Management Extensions for Session Description Protocol (SDP) and Real Time Streaming Protocol (RTSP)".

[45] IETF RFC 8101 "IANA Registration of New Session Initiation Protocol (SIP) Resource-Priority Namespace for Mission Critical Push To Talk service".

[46] Void

[47] Void

[48] IETF RFC 4661 (September 2006): "An Extensible Markup Language (XML)-Based Format for Event Notification Filtering".

[49] Void

[50] Void

[51] IETF RFC 7913 (June 2016): "P-Access-Network-Info ABNF Update".

[52] IETF RFC 7315 (July 2014): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3GPP".

[53] IETF RFC 3329 (January 2003): "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".

[54] IETF RFC 5031 (January 2008): "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

[55] IETF RFC 3581 (August 2003): "An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing".

[56] IETF RFC 3312 (October 2002): "Integration of resource management and Session Initiation Protocol (SIP)".

[57] IETF RFC 7134: "The Management Policy of the Resource Priority Header (RPH) Registry Changed to "IETF Review"".

[58] IETF RFC 5621 (September 2009): "Message Body Handling in the Session Initiation Protocol (SIP)".

[59] IETF RFC 4867: "RTP Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs".

[60] IETF RFC 5009 (September 2007): "Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) for Authorization of Early Media".

[61] IETF RFC 3842 (August 2004) "A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)".

[62] IETF RFC 6442 (December 2011): "Location Conveyance for the Session Initiation Protocol".

[63] IETF RFC 6335: "Internet Assigned Numbers Authority (IANA) Procedures for the Management of the Service Name and Transport Protocol Port Number Registry".

[64] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".

[65] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[66] 3GPP TS 26.171: "Speech codec speech processing functions; Adaptive Multi-Rate - Wideband (AMR-WB) speech codec; General description".

[67] 3GPP TS 33.303: "Proximity-based Services (ProSe); Security aspects".

[68] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".

[69] 3GPP TS 23.003: "Numbering, addressing and identification".

[70] 3GPP TS 33.310: "Network Domain Security (NDS); Authentication Framework (AF)".

[71] Void

[72] IETF RFC 2617: "HTTP Authentication: Basic and Digest Access Authentication".

[73] 3GPP TS 31.102: "Characteristics of the Universal Subscriber Identity Module (USIM) application".

[74] 3GPP TS 36.523-3: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 3: Abstract Test Suites (ATS)".

[75] 3GPP TS 36.523-2: "User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) proforma specification".

[76] IETF RFC 3550: "RTP: A Transport Protocol for Real-Time Applications".

[77] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[78] 3GPP TS 24.334: "Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects; Stage 3".

[79] 3GPP TS 31.101: "UICC-terminal interface; Physical and logical characteristics.

[80] 3GPP TS 31.103: "Characteristics of the IP Multimedia Services Identity Module (ISIM) application".

[81] IETF RFC 6809 (November 2012): "Mechanism to Indicate Support of Features and Capabilities in the Session Initiation Protocol (SIP)".

[82] IETF RFC 7462 (March 2015): "URNs for the Alert-Info Header Field of the Session Initiation Protocol (SIP)".

[83] IETF RFC 4826 (May 2007): " Extensible Markup Language (XML) Formats for Representing Resource Lists".

[84] 3GPP TS 36.579-6: "Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification"

[85] 3GPP TS 36.579-7: "Mission Critical (MC) services over LTE; Part 7: Mission Critical Data (MCData) User Equipment (UE) Protocol conformance specification"

[86] 3GPP TS 24.281: "Mission Critical Video (MCVideo) signalling control; Protocol specification".

[87] 3GPP TS 24.282: "Mission Critical Data (MCData) signalling control; Protocol specification".

[88] 3GPP TS 24.581: "Mission Critical Video (MCVideo) media plane control; Protocol specification".

[89] 3GPP TS 24.582: "Mission Critical Data (MCData) media plane control; Protocol specification".

[90] 3GPP TS 23.281: "Functional architecture and information flows to support Mission Critical Video (MCVideo); Stage 2".

[91] 3GPP TS 23.282: "Functional architecture and information flows to support Mission Critical Data (MCData); Stage 2".

[92] 3GPP TS 22.281: "Mission Critical Video over LTE".

[93] 3GPP TS 22.282: "Mission Critical Data over LTE".

[94] 3GPP TS 33.180: "Security of the mission critical service".

[95] OpenID Connect 1.0: "OpenID Connect Core 1.0 incorporating errata set 1", http://openid.net/specs/openid-connect-core-1_0.html.

[96] IETF RFC 3310: "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".

[97] IETF RFC 3262: "Reliability of Provisional Responses in the Session Initiation Protocol (SIP)".

[98] IETF RFC 6507: "Elliptic Curve-Based Certificateless Signatures for Identity-Based Encryption (ECCSI)".

[99] IETF RFC 6508: "Sakai-Kasahara Key Encryption (SAKKE)".

[100] IETF RFC 7636: "Proof Key for Code Exchange by OAuth Public Clients".

[101] IETF RFC 7519: "JSON Web Token (JWT)".

[102] IETF RFC 7515: "JSON Web Signature (JWS)".

# 3 Definitions, symbols and abbreviations

Editor's Note: Implication to the content of the present chapter due to the introduction of MCVideo and MCData are FFS.

## 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

Void.

## 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 |
| 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 |
| URI | Uniform Resource Identifier |

# 4 General

Editor's Note: Implication to the content of the present chapter due to the introduction of MCVideo and MCData are FFS.

## 4.1 MCPTT Conformance testing test points overview

Figure 4.1.1 provides a general overview of all MCPTT players which may have a role in different conformance testing scenarios together with virtual test points representing the information flow which is intended for conformance testing. The figure is mainly for descriptive purposes and may not necessarily represent a real MCPTT deployment or implementation.

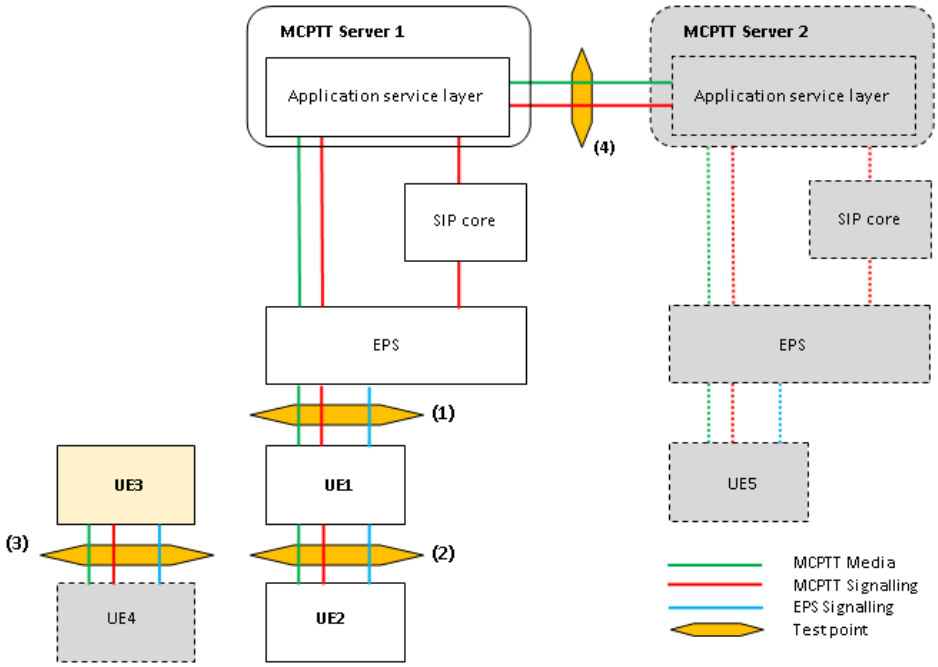


**Figure 4.1.1: MCPTT Conformance testing test points model**

NOTE 1: Which of the shown entities will be simulated and which will be real implementation depends on the test scenario. In the test scenarios in which they play a part, the entities presented with dashed borders and grey fill will be always simulated whereas, the entities with light yellow fill (UE3) will be Implementation Under Test (IUT). The entities with white fill will be either simulated or IUTs or real implementation (e.g. network) depending on the test scenario.

NOTE 2: While showing the different players, figure 4.1.1 should not be understood as showing test environment implementation.

The test points shown on Figure 4.1.1 cover behaviour/requirements observed at various reference points and communication scenarios:

- MCPTT on-network (whenever relevant, reference points as specified in TS 23.179 [8] Functional model description clause 7.3.1 'On-network functional model' are referred):

  - Application plane (MCPTT-1, MCPTT-4, MCPTT-7, MCPTT-8 and MCPTT-9), and, (CSC-1, CSC-2, CSC-4 and CSC-8); Signalling control plane (SIP-1, HTTP-1 and HTTP-2). Test point: (1) or (2). IUT: the UE or the MCPTT Server.

- MCPTT-3 (between different MCPTT Servers), CSC-7 (other group management Servers, normally associated with other MCPTT Servers); Signalling control plane (SIP-2, HTTP-1, HTTP2 and HTTP-3). Test point: (4). IUT: the MCPTT Server.

- MCPTT off-network (TS 23.179 [8], clause 7.3.2 'Off-network functional model'). Test point: (3). IUT: the UE.

- LTE Legacy requirements between UE and EPS and between 2 UEs (covering e.g. Bearer Management at the UE side, ProSe including among others UE-to-network relay, MBMS). Test point: (1), (2) or (3).

Figure 4.1.2 provides a general overview of functions distributions at the MCPTT server side when multiple MCPTT Servers are involved. More functional models can be found in TS 24.379 [9].

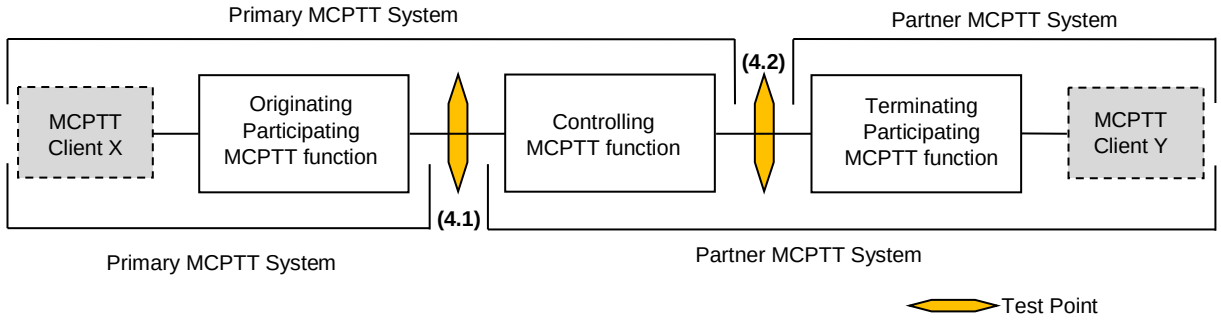


**Figure 4.1.2: MCPTT Conformance testing Client-to-Client test points model**

NOTE 3: While showing the different players and Server functionality, figure 4.1.2 should not be understood as showing test environment implementation.

The test points shown on Figure 4.1.2 provide an example of how 2 different communication scenarios between 2 MCPTT Servers will result in the communication between the servers being monitored at different test points (4.1) and (4.2). It should be noted that Figure 4.1.2 does not imply the physical existence of 2 test points during MCPTT Server-to-Server testing rather it shows two different information flows which need to be verified for conformance. In practice this will also mean that for testing the MCPTT Server on the Server-to-Server interface (test point 4 on Figure 4.1.1), the System Simulator (SS) will need to implement (i.e. be able to simulate) at least all 3 MCPTT functions.

## 4.2 MCPTT Conformance testing test environment overview

Based on the test points models shown in subclause 4.1 examples for test environment implementations are provided below. Figures 4.2.1 to 4.2.3 show test configuration where the Implementation Under Test (IUT) and the System Simulator communicate, one with the other, over the LTE radio interface (test points (1), (2) and (3)). Figure 4.2.4 shows test configuration where the IUT and the system simulator, simulating MCPTT Clients, communicate, one with the other, over the LTE radio interface (test points (1)). Figures 4.2.5 and 4.2.6 show test configuration where the IUT and the System Simulator communicate, one with the other, over the MCPTT-3 interface, as defined by TS 23.179 [8], clause 7.5.2.4 (test points (4)).

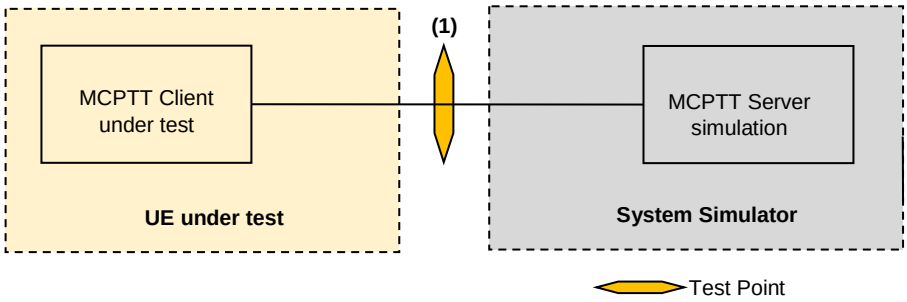


**Figure 4.2.1: Testing the MCPTT Client (on-network)**

NOTE 1: Figure 4.2.1 covers also the case for testing the UE at interface (1) when the IUT behaves as a Relay. For testing this the existence of another UE playing the role of an UE off-network which uses the Relay to connect to the Server will be needed. This could be implemented by the SS simulating both in similar manner as it is shown on Figure 4.2.2.

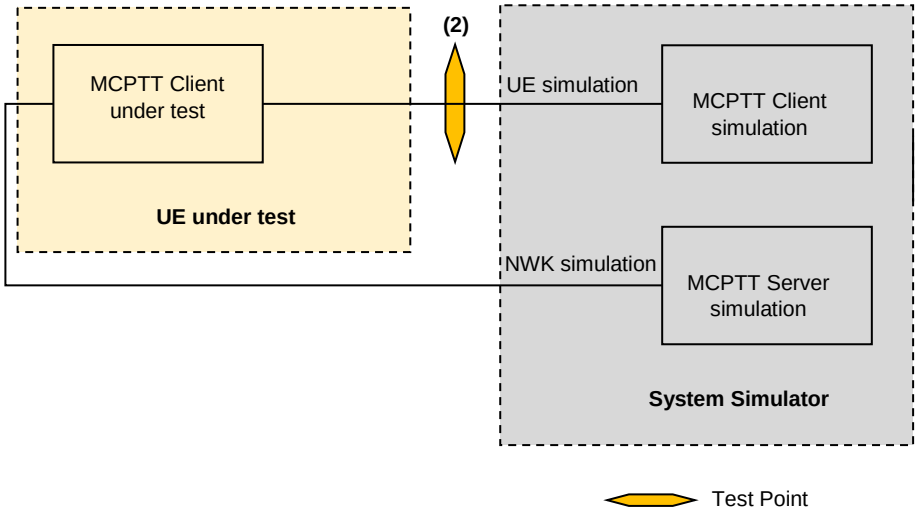


**Figure 4.2.2: Testing the MCPTT Client (on-network) Relay side**

NOTE 1: Figure 4.2.2 covers the case for testing the UE at interface (2) when the IUT behaves as a Relay. For testing this, the existence of LTE NWK and Server to which the Relay relays the data will be needed. This could be implemented by the SS simulating both.

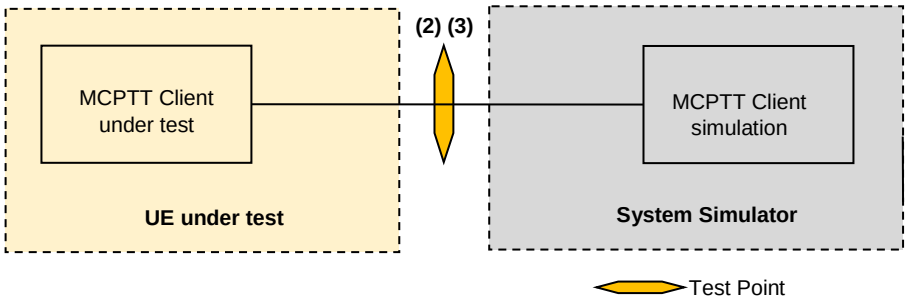


**Figure 4.2.3: Testing the MCPTT Client (off-network)**

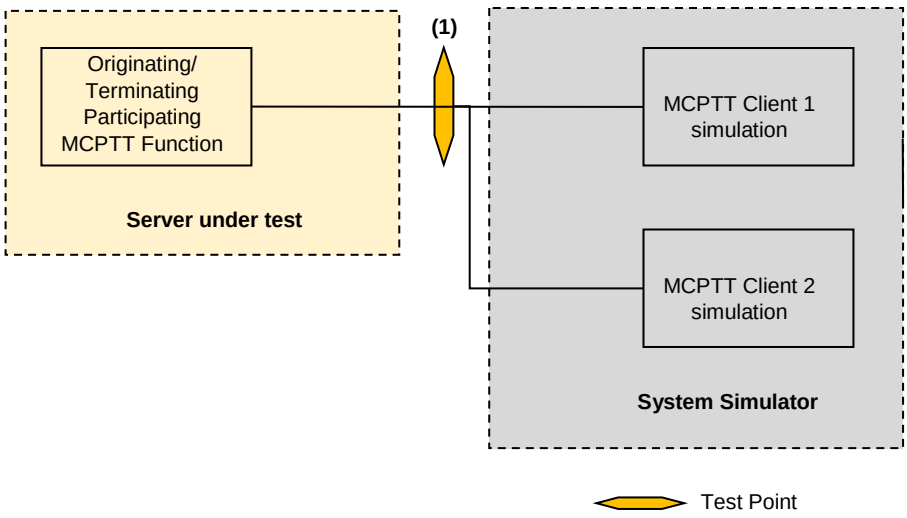


**Figure 4.2.4: Testing the MCPTT Server (server-to-client)**

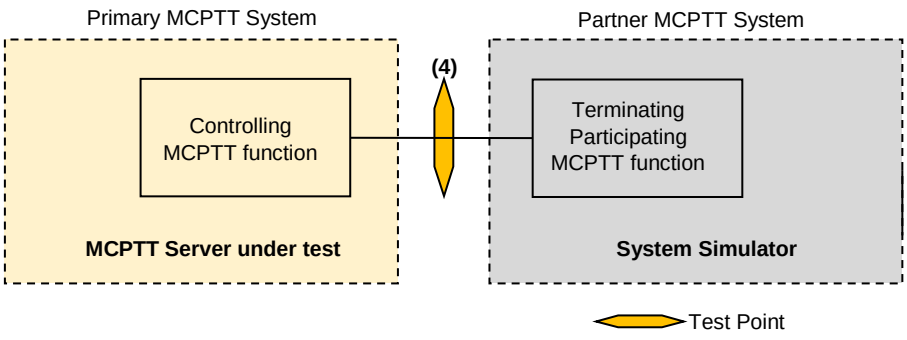


**Figure 4.2.5: Testing the MCPTT Server (server-to-server), Controlling function**

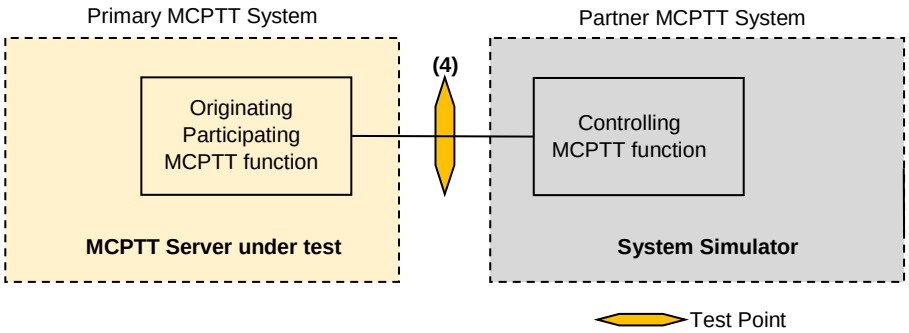


**Figure 4.2.6: Testing the MCPTT Server (server-to-server), Originating function**

## 4.3 MCPTT Conformance testing players and roles assumptions

Based on the described in clause 4.2 test environment scenarios a number of players and their roles have been designated to facilitate the test specification and provide a consistent test description.

For the purposes of MCPTT Client testing

1 MCPTT Server:

- Server A simulated by the SS (in the case of on-network operation).

2 MCPTT Clients:

- Client A installed on the implementation under test
- Client B simulated by the System Simulator (SS) either explicitly (in the case of off-network operations), or, implicitly (in the case of on-network operation).

3 MCPTT Users:

- User A registered with Client A and operating on the implementation under test
- User B registered with Client B simulated by the System Simulator (SS) either explicitly (in the case of off-network operations), or, implicitly (in the case of on-network operation); pre-set at User A configuration as User allowed to be called by User A for any types of calls
- User C known to the User A, not involved in any communication, defined for the sole purpose of testing if the User A/Client A can distinguish between different users when choosing one of them for action; pre-set at User A configuration as User allowed to be called by User A for any types of calls.

4 MCPTT groups:

- Group A to which User A is implicitly affiliated, pre-set at User A configuration, and, comprising as members User A, User B and User C, to be available throughout the entire testing.
- Group D to which User A is not implicitly affiliated, pre-set at User A configuration, and, comprising as members User B and User C, to be used for testing group affiliation.
- Groups B and C not pre-set at User A configuration, to be used for testing creation and termination of groups.

For the purposes of MCPTT Server testing

1 MCPTT Server:

- Server A installed on the implementation under test.

2 MCPTT Clients:

- Client A simulated by the System Simulator (SS)
- Client B simulated by the System Simulator (SS).

2 MCPTT Users:

- User A registered with Client A simulated by the System Simulator (SS) ; pre-set at User A configuration as User allowed to be called by User A for any types of calls
- User B registered with Client B simulated by the System Simulator (SS); pre-set at User A configuration as User allowed to be called by User A for any types of calls

1 MCPTT group:

- Group A to which User A is implicitly affiliated, pre-set at User A configuration, and, comprising as members User A and User B to be available throughout the entire testing.

## 4.4 References to TS 33.179 and TS 33.180

For the purposes of this Technical Specification, it is assumed that TS 33.180 supercedes TS 33.179 and is a backwards compatitible substitute for TS 33.179.

# 5 Common Test Environment

## 5.1 General

Clause 5 provides basic test requirements, and, Generic Procedures and Default messages content to be used by the test cases wherever applicable.

## 5.2 Reference test conditions

### 5.2.1 General

Any E-UTRA frequency band can be used to provide the underlying communication bearer to carry the MCS communication. The requirements are defined in TS 36.508 [6].

### 5.2.2 On-network

There are no specific requirements to the UE on which the MCS client is installed when operating in on-network environment. The basic E-UTRA/EPC procedures shall be supported.

### 5.2.3 Off-network

When operating in off-network environment a MCS client shall:

- implement the procedures for ProSe direct discovery for public safety use as specified in 3GPP TS 24.334 [78];
- implement the procedures for one-to-one ProSe direct communication for Public Safety use as specified in 3GPP TS 24.334 [78].
- implement the procedures for one-to-many ProSe direct communication for Public Safety use as specified in 3GPP TS 24.334 [78].

# 5.3 Generic test procedures for UE MCS operation

## 5.3.1 General

The purpose of the procedures specified in the following subclauses is to facilitate test description by providing procedure sequences which can be referred from the relevant TCs specified e.g. in 3GPP TS 36.579-2 [2], 3GPP TS 36.579-3 [3], 3GPP TS 36.579-6 [84], 3GPP TS 36.579-7 [85].

The procedures specified are required to ensure that any MC service can take place or specific MC relevant pre-conditions are met before a test case can be executed.

## 5.3.2 Generic Test Procedure for MCPTT Authorization/Configuration and Key Generation

### 5.3.2.1 Initial 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 [6] subclause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCPTT operation in the MCPTT configuration document).

Implementation Under Test (IUT):

- UE (MCPTT client)
  - The MCPTT Client has been provisioned with the Initial UE Configuration Data as specified in subclause 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).
  - UE and SS are configured to support one-way authentication based on server certificates (TS 33.180 [94] clause 6.1.1). For this purpose, a self-signed certificate is pre-installed in the SS.
  - The UE User is provided with username/password for user authentication (px_MCPTT_User_A_username, px_MCPTT_User_A_password as provided in TS 36.579-5 [5], Table 9.2-1: MCPTT Client Common PIXIT)
  - The test USIM set as defined in subclause 5.5.10 is inserted.

    The MCPTT client is attached to EPS services and then the UE is Switched OFF (state 1) according to TS 36.508 [6].

### 5.3.2.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

5.3.2.3 Procedures

**Table 5.3.2.3-1: MCPTT user authentication**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Void | - | - |
| 2 | Void | - | - |
| - | EXCEPTION: Steps 3a1-3b1 describe behaviour that depends on UE implementation of the OpenID Connect protocol; the "lower case letter" identifies a step sequence that take place when one or the other is the case. | - | - |
| 3a1 | The UE (MCPTT client) establishes a secure TLS tunnel as specified by 3GPP TS 33.310 [70], to the authorisation endpoint of the IdM server as specified in 3GPP TS 33.180 [94] using the configured URL of the authorisation endpoint of the IdM server as specified in the "<x>/OnNetwork/AppServerInfo/IDMSAuthEndpoint" leaf node, Table 5.5.8.1-1. | - | - |
| 3a2 | The UE (MCPTT client) sends an OpenID Connect Authentication Request using HTTP GET. | --> | HTTP GET (Authorization) |
| 3b1 | The UE (MCPTT client) sends an OpenID Connect Authentication Request using HTTP POST. | --> | HTTP POST (Authorization) |
| 4 | The SS sends a HTTP 200 (OK) including the HTML form requesting username and password. | <-- | HTTP 200 (OK) |
| 5 | Make the UE user provide user credentials: username and password (px_MCPTT_User_A_username, px_MCPTT_User_A_password).<br>NOTE 2 | - | - |
| 6 | The UE (MCPTT client) sends an HTTP POST Request message to the SS containing user name and password. | --> | HTTP POST |
| 7 | The SS sends a HTTP 302 (Found) as the OpenID Connect Authentication Response containing an authorization code. | <-- | HTTP 302 (Found) |
| - | EXCEPTION: Step 8a1 describes behaviour that depends on step 3 above. Step 8a1 only happens if the UE follows step 3b1, otherwise step 8a1 is skipped. | - | - |
| 8a1 | The UE (MCPTT client) establishes a secure TLS tunnel as specified by 3GPP TS 33.310 [70] to the token endpoint of the IdM server as specified in 3GPP TS 33.180 [94] using the configured URL of the token endpoint of the IdM server as specified in the "/<x>/OnNetwork/AppServerInfo/IDMSTokenEndpoint" leaf node, Table 5.5.8.1-1. | - | - |
| 9 | The UE (MCPTT client) sends an HTTP POST Request message to the SS over the TLS connection established to the IdM token endpoint (OIDC Token Request message), passing the authorization code obtained in step 7. | --> | HTTP POST |
| 10 | The SS sends a HTTP 200 (OK) providing id_token, access_token and refresh token. | <-- | HTTP 200 (OK) |
| 11 | The UE (MCPTT client) sends a HTTP POST message presenting the access token obtained in step 10 to the SS over HTTP for Key Management Initialisation.<br>NOTE: Step 11 is the start of the second stage which was started in Step 2. Steps 11 through 14 involve Key Management Authorization. The MCPTT Client/Key Management Client presents the access token to the Key Management Server. The end result is the user gets specific key material. | --> | HTTP POST |
| 12 | The SS replies to the UE with identity specific key information. | <-- | HTTP 200 (OK) |
| 13 | The UE (MCPTT client) sends a HTTP POST message presenting an access token to the SS over HTTP for Key Material Request. | --> | HTTP POST |
| 14 | The SS replies to the UE with identity specific key information. | <-- | HTTP 200 (OK) |

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 15-32 | Void | | |
| NOTE 1: Void.<br>NOTE 1A: Void.<br>NOTE 2: The UE is expected to prompt the MCPTT user for their username and password, or it may be stored on the UE. The provision of the username/password is expected to be done via a suitable implementation dependent MMI. | | | |

**Table 5.3.2.3-2: MCPTT Service Authorization and Key Generation**

| | | | |
|---|---|---|---|
| - | EXCEPTION: Steps 1a1-1b1 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.<br>NOTE: Step 1a1 is the start of the third stage which was started in Step 2 of table 5.3.2.3-1. Steps 1a1, 1b1, and 2 involve User Service Authorization. | - | - |
| 1a1 | The UE (MCPTT client) sends a SIP REGISTER request for service authorisation. | --> | SIP REGISTER |
| 1b1 | The UE (MCPTT client) sends a SIP PUBLISH request for service authorisation. | --> | SIP PUBLISH |
| 2 | The SS (MCPTT server) sends SIP 200 (OK).<br>NOTE: The user is now authorized for MCPTT service. | <-- | SIP 200 (OK) |
| 3 | The UE (MCPTT client) sends a SIP SUBSCRIBE - subscription to multiple documents simultaneously - to the SS containing the access token and a resource list mime body containing a list of the following documents: MCPTT UE Configuration document, MCPTT User Profile Configuration Document, and the MCPTT Service configuration document. The base URI of each list entry is set to the CMS XCAP-ROOT-URI.<br>NOTE: Step 3 is the start of the fourth stage which was started in Step 2 of table 5.3.2.3-1. Steps 3 through 12 involve Configuration Management Authorization. The end result of the fourth stage is that the MCPTT Client receives 3 configuration documents: UE Configuration Document, User Profile Configuration Document, and the Service Configuration Document. | --> | SIP SUBSCRIBE |
| 4 | The SS sends a SIP 200 (OK) message. | <-- | SIP 200 (OK) |
| 5 | The SS sends a SIP NOTIFY message to the UE that contains the XCAP-URI of the documents. | <-- | SIP NOTIFY |
| - | EXCEPTION: The order of steps 6 and 7 depend on UE and SS implementation and is not checked by the implementation | - | - |
| 6 | The UE (MCPTT client) sends a SIP 200 (OK) message. | --> | SIP 200 (OK) |
| 7 | The UE (MCPTT client) sends an HTTP GET Request message to the SS that contains the access token and the XCAP-URI of the MCPTT UE Configuration Document.<br>NOTE: The MCPTT Client is requesting the MCPTT UE Configuration Document. | --> | HTTP GET |
| 8 | The SS sends the HTTP 200 (OK) message including the MCPTT UE Configuration Document. | <-- | HTTP 200 (OK) |
| 9 | The UE (MCPTT client) sends an HTTP GET Request message to the SS that contains the access token and the XCAP-URI of the MCPTT User Profile Configuration Document.<br>NOTE: The MCPTT Client is requesting the MCPTT User Profile Configuration Document. | --> | HTTP GET |
| 10 | The SS sends the HTTP 200 (OK) message including the MCPTT User Profile Configuration Document.<br>NOTE: The MCPTT User Profile Configuration Document includes information on MCPTT groups including for which groups the MCPTT Client is a member. The MCPTT User Profile Configuration Document includes Group A as a group for which the MCPTT Client is a member and is implicitly affiliated. Group A is used as the default group for all test cases in TS 36.579-2 and TS 36.579-3. | <-- | HTTP 200 (OK) |
| 11 | The UE (MCPTT client) sends an HTTP GET Request message to the SS that contains the access token and the XCAP-URI of the MCPTT Service Configuration Document.<br>NOTE: The MCPTT Client is requesting the the MCPTT Service Configuration Document. | --> | HTTP GET |
| 12 | The SS sends the HTTP 200 (OK) message including the MCPTT Service Configuration Document. | <-- | HTTP 200 (OK) |

| | | | |
|---|---|---|---|
| 13 | The UE (MCPTT client) sends a SIP SUBSCRIBE to the SS, containing the access token and a resource list mime body and a list of the Groups to be obtained. The base URI of each list entry is set to the GMS XCAP-ROOT-URI, and the MCPTT group ID identifies a group document.<br>NOTE: Step 13 is the start of the fifth stage which was started in Step 2 of table 5.3.2.3-1. Steps 13 through 18 involve Group Management Authorization. The end result is the MCPTT Client will receive group information for Group A. The MCPTT Client will also get the Group Master Key (GMK) for the group which will be used to derive keys for the group. There will also be a Group User Key Identifier (GUK-ID), and a Group Master Key Identifier (GMK-ID). According TS 33.180 [94], clause 7.4.1, the GMK shall be used as the MIKEY Traffic Generating Key (TGK) and the GUK-ID shall be used as the MIKEY CSB ID. These shall be used to generate the SRTP Master Key and SRTP Master Salt as specified in IETF RFC 3830 [24]. | --> | SIP SUBSCRIBE |
| 14 | The SS sends a SIP 200 (OK) message. | <-- | SIP 200 (OK) |
| 15 | The SS sends a SIP NOTIFY message to the UE that contains the XCAP-URI of the Group documents. | <-- | SIP NOTIFY |
| - | EXCEPTION: The order of steps 16 and 17 depend on UE and SS implementation and is not checked by the implementation | - | - |
| 16 | The UE (MCPTT client) sends a SIP 200 (OK) message. | --> | SIP 200 (OK) |
| 17 | The UE (MCPTT client) sends an HTTP GET Request message to the SS that contains the access token and the XCAP-URI of the Group Configuration document. | --> | HTTP GET |
| 18 | The SS sends the HTTP 200 (OK) message including the Group Document 'MCPTT UE Configuration document'.<br>NOTE 1 | <-- | HTTP 200 (OK) |
| NOTE 1: This completes MCPTT service enabling on the UE. | | | |

### 5.3.2.4 Specific message contents

**Table 5.3.2.4-1: HTTP GET (Step 3a2, Table5.3.2.3-1 )**

| |
|---|
| Derivation Path: Table 5.5.4.2-1, condition AUTH |

**Table 5.3.2.4-2: HTTP POST (Step 3b1, Table 5.3.2.3-1)**

| |
|---|
| Derivation Path: Table 5.5.4.3-1, condition AUTH |

**Table 5.3.2.4-3: HTTP 200 (OK) (Step 4, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.6-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Content-Type** | | | | |
| media-type | "text/html" | Editor's note:<br>to be confirmed | | |
| **Message-body** | | | | |
| HTML form | <!DOCTYPE html><br><html><br><body><br><br><form action=""><br>Username: <input type="text" name="user"><br><br>Password: <input type="password" name="password"><br></form><br><br></body><br></html> | | | |

**Table 5.3.2.4-4: HTTP POST (Step 6, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.3-1, condition USERAUTH |
|---|

**Table 5.3.2.4-5: HTTP 302 (Found) (Step 7, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.8-1, condition AUTH. |
|---|

**Table 5.3.2.4-6: HTTP POST (Step 9, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.3-1, condition TOKEN |
|---|

**Table 5.3.2.4-7: HTTP 200 (OK) (Step 10, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.6-1, condition TOKEN |
|---|

**Table 5.3.2.4-8: HTTP POST (Step 11, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.33-1, condition KMSINIT. |
|---|

**Table 5.3.2.4-9: HTTP 200 (OK) (Step 12, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.6-1, condition KMSINIT. |
|---|

**Table 5.3.2.4-10: HTTP POST (Step 13, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.3-1, condition KMSKEY. |
|---|

**Table 5.3.2.4-11: HTTP 200 (OK) (Step 14, Table 5.3.2.3-1)**

| Derivation Path: Table 5.5.4.6-1, condition KMSKEY. |
|---|

**Table 5.3.2.4-12: SIP REGISTER (Step 1a1, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.13-1, condition CONFIG |
|---|

**Table 5.3.2.4-13: SIP PUBLISH (Step 1b1, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.11-1, condition CONFIG |
|---|

**Table 5.3.2.4-14: SIP SUBSCRIBE (Step 3, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.14-1, condition CONFIG |
|---|

**Table 5.3.2.4-15: SIP NOTIFY (Step 5, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.8-1, condition CONFIG |
|---|

**Table 5.3.2.4-16: HTTP GET (Step 7, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.2-1, condition UECONFIG. |
|---|

**Table 5.3.2.4-17: HTTP GET (Step 9, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.2-1, condition UEUSERPROF. |
|---|

**Table 5.3.2.4-18: HTTP GET (Step 11, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.2-1, condition UESERVCONFIG. |
|---|

**Table 5.3.2.4-19: HTTP 200 (OK) (Step 8, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.6-1, condition UECONFIG. |
|---|

**Table 5.3.2.4-20: HTTP 200 (OK) (Step 10, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.6-1, condition UEUSERPROF. |
|---|

**Table 5.3.2.4-21: HTTP 200 (OK) (Step 12, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.6-1, condition UESERVCONFIG. |
|---|

**Table 5.3.2.4-22: SIP SUBSCRIBE (Step 13, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.14-1, condition GROUPCONFIG | | | | |
|---|---|---|---|---|
| **Message-body** | | | | |
| MIME body part | | MCPTT-Info | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| MIME-part-body | MCPTT-Info as described in Table 5.3.2.4-22A | | | |

**Table 5.3.2.4-22A: MCPTT-INFO in SIP SUBSCRIBE (Table 5.3.2.4-22)**

| Derivation Path: Table 5.5.3.2.1-1 condition CONFIG |
|---|

**Table 5.3.2.4-22B: SIP NOTIFY (Step 15, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.2.8-1, condition GROUPCONFIG |
|---|

**Table 5.3.2.4-23: HTTP GET (Step 17, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.2-1, condition GROUPCONFIG |
|---|

**Table 5.3.2.4-24: HTTP 200 (OK) (Step 18, Table 5.3.2.3-2)**

| Derivation Path: Table 5.5.4.6-1, condition GROUPCONFIG. |
|---|

**Table 5.3.2.4-25: Void**

**Table 5.3.2.4-26: SIP 200 (OK) (Step 2, 4, 14, Table 5.3.2.3-2))**

| Derivation Path: Table 5.5.2.17.1.2-1 |
|---|

**Table 5.3.2.4-27: SIP 200 (OK) (Step 6, 16, Table 5.1.3.2-2)**

| Derivation Path: Table 5.5.2.17.1.1-1 |
|---|

## 5.3.2A Generic Test Procedure for MCVideo Authorization/Configuration and Key Generation

The same as the procedure described in 5.3.2 with the following exception(s):

- The term "MCPTT" is replaced with "MCVideo"
- FFS

## 5.3.2B Generic Test Procedure for MCData Authorization/Configuration and Key Generation

FFS

## 5.3.3 Generic Test Procedure for MCPTT pre-established session establishment CO

### 5.3.3.1 Initial 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 [6] subclause 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 UE has performed the Generic Test Procedure for MCPTT Authorization/Configuration and Key Generation as specified in subclause 5.3.2 and thereby the MCPTT client is authorised for and able to use the MCPTT service including making group and private calls on- and off-network, and, the MCPTT user is registered for receiving MCPTT service through the MCPTT Client.

#### 5.3.3.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

#### 5.3.3.3 Procedure

**Table 5.3.3.3-1: MCPTT pre-established session establishment CO**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Make the UE (MCPTT User) request the creation of a pre-established session | - | - |
| - | EXCEPTION: The E-UTRA/EPC actions which are related to the MCPTT call establishment are described in subclause 5.4.3 'Generic Test Procedure for MCPTT CO communication in E-UTRA'. The test sequence below shows only the MCPTT relevant messages exchanged. | - | - |
| 2-7 | Void. | - | - |
| 8 | UE (MCPTT Client) sends a SIP INVITE message in order to create a pre-established session. | --> | SIP INVITE |
| 8A | The SS sends SIP 100 Trying | <-- | SIP 100 Trying |
| 9 | Void. | - | - |
| 10 | The SS (MCPTT server) responds with a SIP 200 (OK) message. | <-- | SIP 200 (OK) |
| 10A | UE (MCPTT Client) responds with a SIP ACK message | --> | SIP ACK |
| 11 | Void | - | - |
| 12 | The SS transmits an *RRCConnectionRelease* message. | <-- | RRC: *RRCConnectionRelease* |

#### 5.3.3.4 Specific message contents

**Table 5.3.3.4-1: SIP INVITE (step 8, Table 5.3.3.3-1)**

| Derivation Path: Table 5.5.2.5.1-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Answer-Mode** | not present | | | |
| **Contact** | | | RFC 3261 [22 RFC 3840 [33] | |
| feature-param list | not including "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| **Accept** | not present | | RFC 3261 [22] | |
| **Message-body** | MIME body not including MCPTT-Info | not including any MIME body part with Content-Type being "application/vnd.3gpp.mcptt-info+xml" | | |

**Table 5.3.3.4-2: SIP 200 (OK) (step 10, Table 5.3.3.3-1)**

| Derivation Path: Table 5.5.2.17.1.2-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Contact** | | | | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_session_B_ID | The URI that identifies the pre-established session | | |
| port | not present | | | |
| **Resource-Share** | | | 24.379, clause 8.2.2 [9] 24.229, clause 7.2.13 [16] | |
| r-s-param | “media-sharing” | | | |
| origin | "session-initiator" | | | |
| timestamp | "timestamp" EQUAL 1*DIGIT | Indicates when the application server determined the resource sharing rules and is used to determine the most applicable resource sharing option | | |
| rules | | | | |
| new-sharing-key | “audio” | | | |
| directionality | "DL" | | | |
| rules | | | | |
| new-sharing-key | “application” | | | |
| directionality | "DL" | | | |

### 5.3.3A Generic Test Procedure for MCVideo pre-established session establishment CO

The same as the procedure described in 5.3.3 with the following exception(s):

- The term "MCPTT" is replaced with "MCVideo"

## 5.4 Generic test procedures for UE operation over EUTRA/EPS

### 5.4.1 General

The purpose of the procedures specified in the following subclauses is to facilitate test description by providing procedure sequences which can be referred from the relevant TCs specified e.g. in 3GPP TS 36.579-2 [2], 3GPP TS 36.579-3 [3], 3GPP TS 36.579-6 [84], 3GPP TS 36.579-7 [85].

The intention is, wherever possible, that E-UTRA/EPS signalling and initial conditions should not be provided in the test descriptions rather should be referred to the procedure steps described in the generic procedures below, whereas, the MCS SIP signalling and initial conditions when relevant for the test purposes shall be explicitly provided in the tests description itself.

Throughout the generic test procedures E-UTRA/EPC behaviour is denoted as "SS" for the System Simulator simulating the NWK side of the communication, and, "UE" for the Implementation Under Test (IUT), whereas the MCPTT/MCVideo/MCData relevant behaviour is denoted as "SS (MCPTT/MCVideo/MCData server)" and "UE (MCPTT/MCVideo/MCData client)"/"UE (MCPTT/MCVideo/MCData user)" respectively. ProSe related SS behaviour when the SS simulates an UE device is denoted e.g. as "SS-UE1".

### 5.4.1A UE APN/PDN support assumptions

A MCPTT (or in general Mission Critical Services) capable UE, depending on implementation/deployment, may be provided with up to 3 MCPTT related APN: An APN utilised by the MCPTT service including the MCPTT service

APN for the SIP-1 reference point, an MC common core services APN for the HTTP-1 reference point and a MC identity management service APN for the CSC-1 reference point (see TS 23.179 [8], subclause 5.9).

To limit the test specification complexity utilisation of single APN/PDN to be used for all 3 MCPTT services is assumed and only 2 QCIs are used for the bearers established in regard to the PDN:

1. MCPTT (QCI=69 for signalling bearer, QCI=65 for voice)

NOTE 1: It should be noted that the core specs impose a requirement that the QCI value 8 or better shall be used for the EPS bearer that transports HTTP-1 reference point messaging. Using a single APN and having for the EPS bearer QCI=69 will satisfy this.

NOTE 2: Void.

In addition to the MCPTT relevant APN, a MCPTT (or in general Mission Critical Services) capable UE may support 2 additional different APNs for which different PDNs each with its specific QCI:

2. Internet (QCI=9)

3. IMS (VOLTE QCI=5 for signalling bearer, QCI=1 for voice call)

This will result in the need the MCPTT tests to be able to handle a 3 APNs and different PDNs.

NOTE 3: It should be noted that, handling IMS and MCPTT with one APN is theoretically possible but may have undesirable implications e.g. VoLTE signalling could delay MCPTT signalling therefore the assumption is that such implementations will be undesirable and unlikely.

Consequently, for the IMS and MCPTT it should be assumed that the UE will do 2 different registrations, i.e. for each of them there will be a separate IP connection (different IP addresses at the UE and the SS).

Depending on UE configuration PDN connectivities for the up-to three PDNs may be established. There are two major scenarios:

1. The MCX PDN connectivity gets established automatically after switch-on during the initial registration procedure. In addition the UE may establish PDN conntectivities to the IMS PDN and/or the internet PDN. The connectivity to these PDNs may be requested in any order. There can be 1, 2 or 3 PDNs.

2. The UE requests PDN connectivities for IMS and/or internet but not for MCPTT. If IMS and internet are requested, it may be in any order. Establishment of the MCX PDN connectivity is triggered after the initial registration in a seperate procedure. There can be 2 or 3 PDNs in total.

To serve the above scenarios the following parameters are defined in TS 36.579-5 [5]:

- px_MCX_InitialRegistration_TypeOfPDN1:
  First PDN registered during initial registration (either ‘ims’ or ‘internet’ or ‘mcx’)

- px_MCX_InitialRegistration_TypeOfPDN2:
  Second PDN registered during initial registration; in addition to ‘ims’ or ‘internet’ or ‘mcx’ it may be ‘none’ to indicate that there is no second PDN connectivity requested by the UE during initial registration.

- px_MCX_InitialRegistration_TypeOfPDN3:
  Third PDN registered during initial registration; in addition to ‘ims’ or ‘internet’ or ‘mcx’ it may be ‘none’ to indicate that there is no third PDN connectivity requested by the UE during initial registration.

  The type of the parameters is a TTCN-3 enumerated type with values ‘ims’,‘internet’, ‘mcx’ and ‘none’.

In addition there is the parameter px_AccessPointName in TS 36.523-3 [74] which is used as default APN, i.e. for a PDN for which the UE does not provide an APN (NOTE: Any, but only one, of the three PDNs can be the one with default APN).

In regard to the MCPTT the following shall be also taken into account

- If the PDN connection established during the initial attach by the UE is to an APN other than the MCPTT service APN, then prior to user authentication, the UE shall establish another PDN connection to the MCPTT service APN. PDN connection establishment can also be caused by a SIP registration request for MCPTT. The

QCI value of 69 shall be used for the EPS bearer that transports SIP-1 reference point messaging. It is used for SIP signalling.

- For the MCPTT service APN, the MCPTT UE does not activate EPS bearers for media streams.
- The network initiates the creation of a dedicated bearer to transport the voice media. The dedicated bearer for Conversational Voice utilises the standardised QCI value of 65. The network, utilising dynamic PCC, creates no more than one dedicated bearer for voice media (the UE is required to support at minimum one UM bearer which is used for MCPTT voice).

Editor's Note: The requirements in regard to MCVideo and MCData are FFS.

## 5.4.2 Generic Test Procedure for MCPTT UE registration

### 5.4.2.1 Initial 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] subclause 4.4, unless otherwise specified in the test case. Requirements in regard to the PLMN which the simulated Cell(s) belongs to are specified in the test case using the present procedure.

IUT:

- UE (MCPTT client)
  - The UE is MCPTT capable. The MCPTT preconditions required for initiation of MCPTT service authorization for the MCPTT client and the MCPTT service are specified in the test cases.
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - The UE shall be switched off.

### 5.4.2.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

5.4.2.3 Procedure

**Table 5.4.2.3-1: EUTRA/EPS signalling for UE registration**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 0 | Switch the UE on. | - | - |
| 1 | Void | - | - |
| 2 | UE transmits an *RRCConnectionRequest* message. | --> | RRC: *RRCConnectionRequest* |
| 3 | SS transmits an *RRCConnectionSetup* message. | <-- | RRC: *RRCConnectionSetup* |
| 4 | The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the Attach procedure by including the ATTACH REQUEST message. The PDN CONNECTIVITY REQUEST message is piggybacked in ATTACH REQUEST. (NOTE 1) | --> | RRC: *RRCConnectionSetupComplete*<br>NAS: ATTACH REQUEST<br>NAS: PDN CONNECTIVITY REQUEST |
| 5 | The SS transmits an AUTHENTICATION REQUEST message to initiate the EPS authentication and AKA procedure. | <-- | RRC: *DLInformationTransfer*<br>NAS: AUTHENTICATION REQUEST |
| 6 | The UE transmits an AUTHENTICATION RESPONSE message and establishes mutual authentication. | --> | RRC: *ULInformationTransfer*<br>NAS: AUTHENTICATION RESPONSE |
| 7 | The SS transmits a NAS SECURITY MODE COMMAND message to activate NAS security. | <-- | RRC: *DLInformationTransfer*<br>NAS: SECURITY MODE COMMAND |
| 8 | The UE transmits a NAS SECURITY MODE COMPLETE message and establishes the initial security configuration. | --> | RRC: *ULInformationTransfer*<br>NAS: SECURITY MODE COMPLETE |
| - | EXCEPTION: Steps 9a1 to 9a2 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that take place if the UE has ESM information which needs to be transferred. | - | - |
| 9a1 | IF the UE sets the ESM information transfer flag in the last PDN CONNECTIVITY REQUEST message THEN the SS transmits an ESM INFORMATION REQUEST message to initiate exchange of protocol configuration options and/or APN. | <-- | RRC: *DLInformationTransfer*<br>NAS: ESM INFORMATION REQUEST |
| 9a2 | The UE transmits an ESM INFORMATION RESPONSE message to transfer protocol configuration options and/or APN. | --> | RRC: *ULInformationTransfer*<br>NAS: ESM INFORMATION RESPONSE |
| 10 | The SS transmits a *SecurityModeCommand* message to activate AS security. | <-- | RRC: *SecurityModeCommand* |
| 11 | The UE transmits a *SecurityModeComplete* message and establishes the initial security configuration. | --> | RRC: *SecurityModeComplete* |
| 12 | The SS transmits a *UECapabilityEnquiry* message to initiate the UE radio access capability transfer procedure. | <-- | RRC: *UECapabilityEnquiry* |
| 13 | The UE transmits a *UECapabilityInformation* message to transfer UE radio access capability. | --> | RRC: *UECapabilityInformation* |
| 14 | The SS transmits an *RRCConnectionReconfiguration* message to establish the default bearer with condition SRB2-DRB(1, 0) according to TS 36.508 [6] subclause 4.8.2.2.1.1.<br>This message includes the ATTACH ACCEPT message. The ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message is piggybacked in ATTACH ACCEPT. (NOTE 1) | <-- | RRC: *RRCConnectionReconfiguration*<br>NAS: ATTACH ACCEPT<br>NAS: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST |
| 15 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of default bearer. | --> | RRC: RRCConnectionReconfigurationComplete |
| - | EXCEPTION: In parallel to the event described in steps 16 and 16A below, if initiated by the UE the generic procedure for IP address allocation in the U-plane as defined in TS 36.508 [6] subclause 4.5A.1 takes place. | - | - |
| - | EXCEPTION: IF the UE is configured to register for MCX as first PDN during initial registration, THEN in parallel to the event described in steps 16 and 16Abelow the events described in table 5.4.2.3-2 take place. | - | - |

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| - | EXCEPTION: IF the UE is configured to register for IMS as first PDN during initial registration, THEN in parallel to the event described in steps 16 and 16A below the generic procedure for IMS signalling in the U-plane specified in TS 36.508 subclause 4.5A.3 takes place if requested by the UE | - | - |
| 16 | This message includes the ATTACH COMPLETE message. The ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message is piggybacked in ATTACH COMPLETE. | --> | RRC: ULInformationTransfer<br>NAS: ATTACH COMPLETE<br>NAS: ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT |
| - | EXCEPTION: Depending on the UE capability step 16A may be performed 0, 1 or 2 times. (NOTE 1) | - | - |
| 16A | The EUTRA/EPS signalling for establishment of an additional PDN connectivity according to table 5.4.2.3-1A takes place | - | - |
| 17 | The SS transmits an *RRCConnectionRelease* message. | <-- | RRC: *RRCConnectionRelease* |
| - | EXCEPTION: IF the UE is not configured to register for MCX during initial registration, THEN steps 18 to 27 take place. | - | - |
| 18 | Make the UE user request MCPTT service authorisation/configuration.<br>NOTE 2 | - | - |
| 19 | The UE transmits an *RRCConnectionRequest* message. | --> | *RRCConnectionRequest* |
| 20 | SS transmit an *RRCConnectionSetup* message. | <-- | RRC: *RRCConnectionSetup* |
| 21 | The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message. | --> | RRC: *RRCConnectionSetupComplete*<br>NAS: SERVICE REQUEST |
| 22 | The SS transmits a *SecurityModeCommand* message to activate AS security. | <-- | RRC: *SecurityModeCommand* |
| 23 | The UE transmits a *SecurityModeComplete* message and establishes the initial security configuration. | --> | RRC: *SecurityModeComplete* |
| 24 | The SS configures a new data radio bearer, associated with the default EPS bearer context.<br>The *RRCConnectionReconfiguration* message is using condition SRB2-DRB(N, 0) with N being the number of PDN connectivities established during initial registration (steps 0 – 17).<br>The DRBs associated with the respective default EPS bearer context obtained during the attach procedure are established | <-- | RRC: *RRCConnectionReconfiguration* |
| 25 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of the new radio bearer, associated with the default EPS bearer context. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| 26 | The EUTRA/EPS signalling for establishment of an additional PDN connectivity according to table 5.4.2.3-1A takes place | - | - |
| 27 | The SS transmits an *RRCConnectionRelease* message. | <-- | RRC: *RRCConnectionRelease* |

NOTE 1: The assumptions for the PDN support of a MCPTT capable UE, including the default EPS bearer context QCI requirements in regard to the different PDN are described in 5.4.1A.

NOTE 2: This will start a 5 stage process. The first stage involves MCPTT User Authentication and includes Steps 3a1 through 10 of Table 5.3.2.3-1. The end result of the first stage is the MCPTT Client receives 3 tokens: access token, ID token, and refresh token.

**Table 5.4.2.3-1A: EUTRA/EPS signalling for establishment of an additional PDN connectivity**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | The UE transmits a PDN CONNECTIVITY REQUEST message to request an additional PDN. | --> | RRC: *ULInformationTransfer*<br>NAS: PDN CONNECTIVITY REQUEST |
| 2 | The SS configures a new data radio bearer, associated with the additional default EPS bearer context. *RRCConnectionReconfiguration* message contains the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message. | <-- | RRC: *RRCConnectionReconfiguration*<br>NAS:<br>ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST |
| 3 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of additional default bearer. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| - | EXCEPTION: In parallel to the event described in step 4 below, if initiated by the UE the generic procedure for IP address allocation in the U-plane specified in TS 36.508 subclause 4.5A.1 takes place performing IP address allocation in the U-plane. | - | - |
| - | EXCEPTION: IF ADD_IMS THEN in parallel to the event described in step 4 below the generic procedure for IMS signalling in the U-plane specified in TS 36.508 subclause 4.5A.3 takes place if requested by the UE | - | - |
| - | EXCEPTION: IF ADD_MCX THEN in parallel to the event described in step 4 below the SIP registration for MCPTT as specified in table 5.4.2.3-2 takes place | - | - |
| 4 | The UE transmits an ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message. | --> | RRC: *ULInformationTransfer*<br>NAS: ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT |

| Condition | Explanation |
|---|---|
| ADD_IMS | true if PDN CONNECTIVITY REQUEST is for IMS |
| ADD_MCX | true if PDN CONNECTIVITY REQUEST is for MCX |

**Table 5.4.2.3-2: SIP registration for MCPTT**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| - | EXCEPTION: In parallel to the event described in steps 1 to 4 below the MCPTT user authentication as according to table 5.3.2.3-1 take place. | | |
| 1 | The UE sends initial registration for IMS services. | --> | SIP REGISTER |
| 2 | The SS responds with a valid AKAv1-MD5 authentication challenge and security mechanisms supported by the network. | <-- | SIP 401 Unauthorized |
| 3 | The UE completes the security negotiation procedures, sets up a temporary set of SAs and uses those for sending another REGISTER with AKAv1-MD5 credentials. | --> | SIP REGISTER |
| 4 | The SS responds with 200 OK. | <-- | SIP 200 OK |
| 5-6 | Void | | |
| 6A | The generic procedure for MCPTT Service Authorization as specified in table 5.3.2.3-2 takes place | | |
| 7 | The SS (MCPTT server) sends SIP MESSAGE for configuring Location Info reporting. | <-- | SIP MESSAGE |
| 8 | The UE (MCPTT client) responds with SIP 200 (OK) | --> | SIP 200 (OK) |

#### 5.4.2.4 Specific message contents

All specific EUTRA/EPS signalling message contents shall be referred to TS 36.508 [6] subclause 4.6 and 4.7.

The MCPTT relevant SIP message contents, Table 5.4.2.3-2, are specified in the present document subclause 5.5.2, except for the following messages.

**Table 5.4.2.4-1: SIP MESSAGE (step 7)**

| Derivation Path: Table 5.5.2.7.2-1 SIP MESSAGE from the SS | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Message-body** | | | | |
| MIME body part | | Location info | TS 24.379 [9] clause F.3 | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| MIME-part-body | As described in Table 5.5.3.4.2-1: Location-info (Configuration sent by the SS) | | | |

Editor's note: To be checked whether instead of specific message content for the Message-body reference to a condition (EMERGENCY-CALL or IMMPERIL-CALL) may be used.

**Table 5.4.2.4-2: SIP 200 (OK) (Step 8, Table 5.4.2.3-2)**

| Derivation Path: Table 5.5.2.17.1.1-1 |
|---|

**Table 5.4.2.4-3: REGISTER (Step 1, Table 5.4.2.3-2)**

| Derivation Path: Table 5.5.2.13-1 with condition SIP_REGISTER_INITIAL |
|---|

**Table 5.4.2.4-4: SIP 401 (Unauthorized) (Step 2, Table 5.4.2.3-2)**

| Derivation Path: Table 5.5.2.19.7-1 |
|---|

**Table 5.4.2.4-5: REGISTER (Step 3, Table 5.4.2.3-2)**

| Derivation Path: Table 5.5.2.13-1 |
|---|

**Table 5.4.2.4-6: SIP 200 (OK) (Step 4, Table 5.4.2.3-2)**

| Derivation Path: Table 5.5.2.17.1.2-1 |
|---|

## 5.4.2A Generic Test Procedure for MCVideo UE registration

The same as the procedure described in 5.4.2 with the following exception(s):

- The term "MCPTT" is replaced with "MCVideo".

## 5.4.2B Generic Test Procedure for MCData UE registration

The same as the procedure described in 5.4.2 with the following exception(s):

- The term "MCPTT" is replaced with "MCData", and the term "call" with "communication".

## 5.4.3 Generic Test Procedure for MCPTT CO communication in E-UTRA

### 5.4.3.1 Initial conditions

System Simulator:

- SS (MCPTT server)
- SS E-UTRA related parameters are set to the default parameters for the basic single cell environment, as defined in TS 36.508 [6] subclause 4.4, unless otherwise specified in the test case. Requirements in regard to the PLMN which the simulated Cell(s) belongs to are specified in the test case using the present procedure.

IUT:

- UE (MCPTT client)
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - The UE has performed the Generic Test Procedure for MCPTT UE registration as specified in subclause 5.4.2 and is in E-UTRA Registered, Idle Mode state with the MCPTT Client being active. During the attach a default EPS bearer context #3 (QCI 69) according to table 6.6.1-1, TS 36.508 [6] is established for MCPTT and SIP signalling.

  NOTE 1: The assumptions for the PDN support of a MCPTT capable UE, including the default EPS bearer context QCI requirements in regard to the different PDN are described in 5.4.1A.

  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

### 5.4.3.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

### 5.4.3.3 Procedure

**Table 5.4.3.3-1: EUTRA/EPS signalling for MCPTT CO communication**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Make the UE attempt an MCPTT call | - | - |
| 2 | The UE transmits an *RRCConnectionRequest* message with ' establishmentCause' set to ' mo-Data '. | --> | *RRCConnectionRequest* |
| 3 | SS transmit an *RRCConnectionSetup* message. | <-- | RRC: *RRCConnectionSetup* |
| 4 | The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message. | --> | RRC: *RRCConnectionSetupComplete*<br>NAS: SERVICE REQUEST |
| 5 | The SS transmits a *SecurityModeCommand* message to activate AS security. | <-- | RRC: *SecurityModeCommand* |
| 6 | The UE transmits a *SecurityModeComplete* message and establishes the initial security configuration. | --> | RRC: *SecurityModeComplete* |
| 7 | The SS configures a new data radio bearer, associated with the default EPS bearer context.<br>The *RRCConnectionReconfiguration* message is using condition SRB2-DRB(1, 0) as specified in TS 36.508 [6] subclause 4.8.2.2.1. The DRB associated with default EPS bearer context obtained during the attach procedure is established (see Preamble). | <-- | RRC: *RRCConnectionReconfiguration* |
| - | EXCEPTION: In parallel to the events described in step 8 below, the events described in table 5.4.3.3-2 take place. | - | - |

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 8 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of the new data radio bearer, associated with the default EPS bearer context. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| 9-12 | Void. | - | - |
| 13 | The SS configures a new RLC-UM data radio bearer, associated with the dedicated EPS bearer context. *RRCConnectionReconfiguration* message contains the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message. EPS bearer context #5 (QCI 65) according to table 6.6.2-1: Reference dedicated EPS bearer contexts is used.<br>NOTE 1: The same MCPTT PDN address is applicable because the linked EPS bearer ID refers to the default EBC.<br>NOTE 2: The network initiates the creation of a dedicated bearer to transport the voice media see 5.4.1A. | <-- | RRC: *RRCConnectionReconfiguration*<br>NAS:<br>ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST |
| 14 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of the new data radio bearer, associated with the default EPS bearer for emergency IMS signalling. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| 15 | The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message. | --> | RRC: ULInformationTransfer<br>NAS:ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT |

**Table 5.4.3.3-2: SIP signalling for MCPTT CO communication**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | The UE (MCPTT client) sends an initial SIP INVITE request requesting the establishment of an MCPTT call. | --> | SIP INVITE |
| 2 | The SS (MCPTT server) sends SIP 100(Trying). | <-- | SIP 100 (Trying) |
| 3 | The SS (MCPTT server) sends SIP 200 (OK). | <-- | SIP 200 (OK) |
| 4 | The UE (MCPTT client) sends a SIP ACK in response to the SIP 200 (OK) | --> | SIP ACK |
| NOTE: The SIP sequence described in the present table is based on MCPTT CO call establishment and is for descriptive purposes only. When a TC refers to the generic procedure described in the present subclause, the SIP sequence may be replaced as appropriate. | | | |

### 5.4.3.4 Specific message contents

All specific EUTRA/EPS signalling message contents shall be referred to TS 36.508 [6] subclauses 4.6 and 4.7.

All specific SIP signalling message contents shall be specified in the TC which refers to the present procedure.

## 5.4.3A Generic Test Procedure for MCVideo CO communication in E-UTRA

The same as the procedure described in 5.4.3 with the following exception(s):

- The term "MCPTT" is replaced with "MCVideo".
- EPS bearer context #3 (QCI 2) according to TS 36.508 [6], table 6.6.2-1: Reference dedicated EPS bearer contexts is used.

## 5.4.3B Generic Test Procedure for MCData CO communication in E-UTRA

The same as the procedure described in 5.4.3 with the following exception(s):

- The term "MCPTT" is replaced with "MCData", and the term "call" with "communication".
- EPS bearer context #[9] (QCI 70) according to TS 36.508 [6], table 6.6.2-1: Reference dedicated EPS bearer contexts is used.

## 5.4.4 Generic Test Procedure for MCPTT CT communication in E-UTRA

### 5.4.4.1 Initial 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] subclause 4.4, unless otherwise specified in the test case. Requirements in regard to the PLMN which the simulated Cell(s) belongs to are specified in the test case using the present procedure.

IUT:

- UE (MCPTT client):
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - The UE has performed the Generic Test Procedure for MCPTT UE registration as specified in subclause 5.4.2 and is in E-UTRA Registered, Idle Mode state with the MCPTT Client being active. During the attach a default EPS bearer context #3 (QCI 69) according to table 6.6.1-1, TS 36.508 [6] is established for MCPTT and SIP signalling.

NOTE 1: The assumptions for the PDN support of a MCPTT capable UE, including the default EPS bearer context QCI requirements in regard to the different PDN are described in 5.4.1A.

- Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

### 5.4.4.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

### 5.4.4.3 Procedure

**Table 5.4.4.3-1: EUTRA/EPS signalling for MCPTT CT communication**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | SS sends a *Paging* message to the UE on the appropriate paging block, and including the UE identity in one entry of the IE *pagingRecordLists*. | <-- | RRC: *Paging* (PCCH) |
| 2 | The UE transmits an *RRCConnectionRequest* message with ' establishmentCause' set to 'mt-Access'. | --> | *RRCConnectionRequest* |
| 3 | SS transmit an *RRCConnectionSetup* message. | <-- | RRC: *RRCConnectionSetup* |
| 4 | The UE transmits an *RRCConnectionSetupComplete* message to confirm the successful completion of the connection establishment and to initiate the session management procedure by including the SERVICE REQUEST message. | --> | RRC: *RRCConnectionSetupComplete*<br>NAS: SERVICE REQUEST |
| 5 | The SS transmits a *SecurityModeCommand* message to activate AS security. | <-- | RRC: *SecurityModeCommand* |
| 6 | The UE transmits a *SecurityModeComplete* message and establishes the initial security configuration. | --> | RRC: *SecurityModeComplete* |

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 7 | The SS configures a new data radio bearer, associated with the default EPS bearer context.<br>The *RRCConnectionReconfiguration* message is using condition SRB2-DRB(1, 0) as specified in TS 36.508 [6] subclause 4.8.2.2.1. The DRB associated with default EPS bearer context obtained during the attach procedure is established (see Preamble). | <-- | RRC: *RRCConnectionReconfiguration* |
| - | EXCEPTION: In parallel to the events described in steps 11-15 below, the event described in step 1, table 5.4.4.3-2 takes place. | - | - |
| 8 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of the new data radio bearer, associated with the default EPS bearer context. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| 9-12 | Void. | - | - |
| 13 | The SS configures a new RLC-UM data radio bearer, associated with the dedicated EPS bearer context. *RRCConnectionReconfiguration* message contains the ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message. EPS bearer context #5 (QCI 65/69) according to table 6.6.2-1: Reference dedicated EPS bearer contexts is used.<br>NOTE 1: The same MCPTT PDN address is applicable because the linked EPS bearer ID refers to the default EBC.<br>NOTE 2: The network initiates the creation of a dedicated bearer to transport the voice media see 5.4.1A. | <-- | RRC: *RRCConnectionReconfiguration*<br>NAS:<br>ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST |
| 14 | The UE transmits an *RRCConnectionReconfigurationComplete* message to confirm the establishment of the new data radio bearer, associated with the default EPS bearer for emergency IMS signalling. | --> | RRC: *RRCConnectionReconfigurationComplete* |
| 15 | The UE transmits an ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message. | --> | RRC: ULInformationTransfer<br>NAS:ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT |
| 16 | The event described in step 2, table 5.4.4.3-2 takes place. | - | - |

**Table 5.4.4.3-2: SIP signalling for MCPTT CT communication**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | The SS (MCPTT Server) sends an initial SIP INVITE request requesting the establishment of an MCPTT call. | <-- | SIP INVITE |
| - | EXCEPTION: Step 1Aa1 describes behaviour that depends on the UE implementation; the "lower case letter" identifies a step sequence that take place if the UE responds to a SIP INVITE message with a SIP 100 (Trying) message. | - | - |
| 1Aa1 | The UE (MCPTT client) may optionally send SIP 100 (Trying) message. | --> | SIP 100 (Trying) |
| 2 | The UE (MCPTT client) sends SIP 200 (OK). | --> | SIP 200 (OK) |
| 3 | The SS (MCPTT Server) responds to SIP 200 (OK) with a SIP ACK. | <-- | SIP ACK |
| NOTE: The SIP sequence described in the present table is based on MCPTT CT call establishment and is for descriptive purposes only. When a TC refers to the generic procedure described in the present subclause, the SIP sequence may be replaced as appropriate. | | | |

#### 5.4.4.4 Specific message contents

All specific EUTRA/EPS signalling message contents shall be referred to TS 36.508 [6] subclause 4.6 and 4.7.

All specific SIP signalling message contents shall be specified in the TC which refers to the present procedure.

### 5.4.4A Generic Test Procedure for MCVideo CT communication in E-UTRA

The same as the procedure described in 5.4.4 with the following exception(s):

- The term "MCPTT" is replaced with "MCVideo".
- EPS bearer context #3 (QCI 2) according to TS 36.508 [6], table 6.6.2-1: Reference dedicated EPS bearer contexts is used.

### 5.4.4B Generic Test Procedure for MCData CT communication in E-UTRA

The same as the procedure described in 5.4.4 with the following exception(s):

- The term "MCPTT" is replaced with "MCData", and the term "call" with "communication".
- EPS bearer context #[9] (QCI 70) according to TS 36.508 [6], table 6.6.2-1: Reference dedicated EPS bearer contexts is used.

### 5.4.5 Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment

#### 5.4.5.1 Initial 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 [6], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator configured to simulate a location in the centre of Geographical area #1 and providing timing reference as defined in TS 36.508 [6] Table 4.11.2-2 scenario #1, for the assistance of E-UTRAN off-network testing.

NOTE: For operation in off-network environment, it needs to be ensured that after the UE is powered up it considers the Geographical area #1 as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

IUT:

- UE (MCPTT client):
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

UE state:

- The UE is in state Switched OFF (state 1) according to TS 36.508 [6].

#### 5.4.5.2 Definition of system information messages

N/a (out of E-UTRA coverage)

5.4.5.3 Procedure

**Table 5.4.5.3-1: ProSe direct communication one-to-one out of E-UTRA coverage signalling for MCPTT CO communication-establishment**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Power up the UE. | - | - |
| 2 | Wait for 15 sec to allow the UE to establish that it is out of coverage and initiate scanning the frequency pre-set for ProSe communication for any activities. | - | - |
| 3 | Make the UE initiate one-to-one ProSe direct communication with the remote UE preconfigured (ProSe Layer-2 Group ID). | - | - |
| 4 | UE sends a DIRECT_COMMUNICATION_REQUEST message, IP Address Config IE set to "address allocation not supported". | --> | DIRECT_COMMUNICATION_REQUEST |
| 5 | SS-UE1 sends a DIRECT_SECURITY_MODE_COMMAND message. | <-- | DIRECT_SECURITY_MODE_COMMAND |
| 6 | UE sends a DIRECT_SECURITY_MODE_COMPLETE message ciphered and integrity protected with the new security context. | --> | DIRECT_SECURITY_MODE_COMPLETE |
| 7 | SS-UE1 sends a DIRECT_COMMUNICATION_ACCEPT message. | <-- | DIRECT_COMMUNICATION_ACCEPT |
| 8 | EXCEPTION: After the communication is established, an IP address configuration procedure is performed depending on what the UE has indicated in the IP Address Config IE (if it is not "address allocation not supported") in the DIRECT_COMMUNICATION_REQUEST message, and, the SS-UE1 itself indicating "address allocation not supported" in the DIRECT_COMMUNICATION_ACCEPT message. | - | - |
| - | EXCEPTION: Steps 9a1 to 9a2 describe behaviour that depends on UE implementation; the "lower case letter" identifies a step sequence that depends on the UE implementation of keepalive procedure. | - | - |
| 9a1 | UE sends a DIRECT_COMMUNICATION_KEEPALIVE message. | --> | DIRECT_COMMUNICATION_KEEPALIVE |
| 9a2 | SS-UE1 sends a DIRECT_COMMUNICATION_KEEPALIVE_ACK message. | <-- | DIRECT_COMMUNICATION_KEEPALIVE_ACK |

5.4.5.4 Specific message contents

**Table 5.4.5.4-1: DIRECT_COMMUNICATION_ACCEPT (step 7 Table 5.4.5.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-6. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| IP Address Config | '0011'B | address allocation not supported | |
| Link Local IPv6 Address | If the UE indicated 'address allocation not supported' in the IP Address Config IE in the DIRECT_COMMUNICATION_REQUEST message then a link-local IPv6 address formed locally | 128-bit IPv6 address | |

**Table 5.4.5.4-2: DIRECT_SECURITY_MODE_COMMAND (step 5, Table 5.4.5.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-7. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| UE Security Capabilities | Set to the UE Security Capabilities received in the DIRECT_COMMUNICATION_REQUEST message | | |
| Chosen Algorithms | One of the non-null algorithms provided in UE Security Capabilities (i.e. different to EIA0 (null integrity protection algorithm)/EEA0 (null ciphering algorithm)) | | |
| MSB of $K_D$ ID | The MSB of KD ID of the new KD | | |
| $K_D$ Freshness | Not included | | |
| GPI | Not included | | |
| User Info { | | | |
| Type of User Info | IMSI | | |
| Odd/even indication | Reflecting the number of digits in the IMSI | | |
| Identity digits | A value different to the IMSI of the UE | | |
| } | | | |

**Table 5.4.5.4-3: DIRECT_SECURITY_MODE_COMPLETE (step 6, Table 5.4.5.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-8. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| LSB of KD ID | Not included | | |

**Table 5.4.5.4-4: DIRECT_COMMUNICATION_KEEPALIVE (step 9a1, Table 5.4.5.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-9. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Keepalive Counter | 0 | | |
| Maximum Inactivity Period | Any allowed value | | |

## 5.4.6 Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment

### 5.4.6.1 Initial 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 [6], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator configured to simulate a location in the centre of Geographical area #1 and providing timing reference as defined in TS 36.508 [6] Table 4.11.2-2 scenario #1,for the assistance of E-UTRAN off-network testing.

NOTE: For operation in off-network environment, it needs to be ensured that after the UE is powered up it considers the Geographical area #1 as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

IUT:

- UE (MCPTT client)
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

UE state:

- The UE is in state Switched OFF (state 1) according to TS 36.508 [6].

#### 5.4.6.2 Definition of system information messages

N/a (out of E-UTRA coverage).

#### 5.4.6.3 Procedure

**Table 5.4.6.3-1: ProSe direct communication one-to-one out of E-UTRA coverage signalling for MCPTT CT communication-establishment**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Power up the UE. | - | - |
| 2 | Wait for 15 sec to allow the UE to establish that it is out of coverage and initiate scanning the frequency pre-set for ProSe communication for any activities. | - | - |
| 3 | SS-UE1 sends a DIRECT_COMMUNICATION_REQUEST message, IP Address Config IE set to "address allocation not supported". | <-- | DIRECT_COMMUNICATION_REQUEST |
| 4 | UE sends a DIRECT_SECURITY_MODE_COMMAND message uncyphered but integrity protected with the new security context. | --> | DIRECT_SECURITY_MODE_COMMAND |
| 5 | SS-UE1 sends a DIRECT_SECURITY_MODE_COMPLETE message ciphered and integrity protected with the new security context. | <-- | DIRECT_SECURITY_MODE_COMPLETE |
| 6 | UE sends a DIRECT_COMMUNICATION_ACCEPT message. | --> | DIRECT_COMMUNICATION_ACCEPT |
| 7 | EXCEPTION: After the communication is established, an IP address configuration procedure is performed depending on what the UE has indicated in the IP Address Config IE (if it is not "address allocation not supported") in the DIRECT_COMMUNICATION_REQUEST message, and, the SS-UE1 itself indicating "address allocation not supported" in the DIRECT_COMMUNICATION_ACCEPT message. | - | - |
| 8 | SS-UE1 sends a DIRECT_COMMUNICATION_KEEPALIVE message with a Keepalive Counter IE that contains the value of the keepalive counter for this link=0, and a Maximum Inactivity Period IE. | <-- | DIRECT_COMMUNICATION_KEEPALIVE |
| 9 | UE sends a DIRECT_COMMUNICATION_KEEPALIVE_ACK message including the Keepalive Counter IE set to the same value as that received in the DIRECT_COMMUNICATION_KEEPALIVE message. | --> | DIRECT_COMMUNICATION_KEEPALIVE_ACK |

5.4.6.4 Specific message contents

**Table 5.4.6.4-1: DIRECT_COMMUNICATION_REQUEST (step 3, Table 5.4.6.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-5. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| User Info { | | | |
| Type of User Info | IMSI | | |
| Odd/even indication | Reflecting the number of digits in the IMSI | | |
| Identity digits | A value different to the IMSI of the UE | | |
| } | | | |
| IP Address Config | '0011'B | address allocation not supported | |
| Maximum Inactivity Period | '10 0000 0000'B | 512 sec, randomly chosen to allow sufficient time for a TC which uses this procedure to be completed without need to repeat the keepalive procedure | |
| Nonce_1 | | | |
| UE Security Capabilities | 01111111 01111111 | All but null algorithms supported | |
| MSB of $K_{D\text{-}sess}$ ID | the 8 most significant bits of the KD-sess ID | | |
| $K_D$ ID | Not present | | |
| Signature | the ECCSI signature calculated with the User Info and Nonce_1 as specified in 3GPP TS 33.303 [67] | | |
| Link Local IPv6 Address | a link-local IPv6 address formed locally | | |

**Table 5.4.6.4-2: DIRECT_SECURITY_MODE_COMMAND (step 4 Table 5.4.6.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-7. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MSB of $K_D$ ID | Any allowed value | | |
| $K_D$ Freshness | Not included | | |
| GPI | Not included | | |
| Signature | The ECCSI signature calculated with the User Info and Nonce_1 as specified in 3GPP TS 33.303 [67] | | |
| Encrypted Payload | The SAKKE payload generated as specified in 3GPP TS 33.303 [67]. | | |

**Table 5.4.6.4-3: DIRECT_SECURITY_MODE_COMPLETE (step 5, Table 5.4.6.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-8. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| LSB of KD ID | 16 least significant bits of KD ID | | |

**Table 5.4.6.4-4: DIRECT_COMMUNICATION_KEEPALIVE (step 8, Table 5.4.6.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-9. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Keepalive Counter | 0 | | |
| Maximum Inactivity Period | '10 0000 0000'B | 512 sec, randomly chosen to allow sufficient time for a TC which uses this procedure to be completed without need to repeat the keepalive procedure | |

## 5.4.7 Generic Test Procedure for MCPTT communication over ProSe direct one-to-one communication out of E-UTRA coverage - release by the SS

### 5.4.7.1 Initial conditions

System Simulator:

- SS-UE1 (MCPTT Client).
  - Same as those defined in the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

IUT:

- UE (MCPTT client)

  ProSe related configuration

  - Same as those defined in the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

UE state

- The UE has established ProSe direct communication one-to-one out of E-UTRA coverage using the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

### 5.4.7.2 Definition of system information messages

N/a (out of E-UTRA coverage).

5.4.7.3 Procedure

**Table 5.4.7.3-1: ProSe direct communication one-to-one out of E-UTRA coverage signalling for MCPTT communication - release by the SS**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | SS-UE1 sends a DIRECT_COMMUNICATION_RELEASE message with a Release Reason IE indicating 'Direct Communication to peer UE no longer needed'. | <-- | DIRECT_COMMUNICATION_RELEASE |
| 2 | UE sends a DIRECT_COMMUNICATION_RELEASE_ACCEPT message. | --> | DIRECT_COMMUNICATION_RELEASE_ACCEPT |

5.4.7.4 Specific message contents

**Table 5.4.7.4-1: DIRECT_COMMUNICATION_RELEASE (step 1, Table 5.4.7.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-11. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Release Reason | '0001'B | Direct communication to the peer UE no longer needed | |

## 5.4.8 Generic Test Procedure for MCPTT communication over ProSe direct one-to-one communication out of E-UTRA coverage - release by the UE

5.4.8.1 Initial conditions

System Simulator:

- SS-UE1 (MCPTT Client).
  - Same as those defined in the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

IUT:

- UE (MCPTT client)

  ProSe related configuration

  - Same as those defined in the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

UE state

- The UE has established ProSe direct communication one-to-one out of E-UTRA coverage using the 'Generic Test Procedure for MCPTT CO communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.5, or, the 'Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-one communication out of E-UTRA coverage-establishment', as described in subclause 5.4.6.

#### 5.4.8.2 Definition of system information messages

N/a (out of E-UTRA coverage).

#### 5.4.8.3 Procedure

**Table 5.4.8.3-1: ProSe direct communication one-to-one out of E-UTRA coverage signalling for MCPTT communication - release by the UE**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | UE sends a DIRECT_COMMUNICATION_RELEASE message with a Release Reason IE indicating 'Direct Communication to peer UE no longer needed'. | --> | DIRECT_COMMUNICATION_RELEASE |
| 2 | SS-UE1 sends a DIRECT_COMMUNICATION_RELEASE_ACCEPT message. | <-- | DIRECT_COMMUNICATION_RELEASE_ACCEPT |

#### 5.4.8.4 Specific message contents

**Table 5.4.8.4-1: DIRECT_COMMUNICATION_RELEASE (step 1, Table 5.4.8.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.3-11. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Release Reason | '0001'B | Direct communication to the peer UE no longer needed | |

### 5.4.9 Generic Test Procedure for MCPTT communication in E-UTRA / Change of cells

#### 5.4.9.1 Initial conditions

System Simulator:

- SS (MCPTT server)
- SS E-UTRA
  - Parameters are set to the default parameters for the basic E-UTRA single mode multi cell network scenarios, as defined in TS 36.508 [6] subclause 4.4, unless otherwise specified in the test case.
  - 3 cells (Cell 1, Cell 2 and Cell 4, all operating on the same frequency). Cells 1 and 2 are on the same PLMN1, whereas Cell 4 is on a different PLMN2.

NOTE: The procedure only requires at maximum 2 cells to be active at any one instance.

IUT:

- UE (MCPTT client)
  - The UE has performed the Generic Test Procedure for MCPTT UE registration as specified in subclause 5.4.2 and is in E-UTRA Registered, Idle Mode state on Cell 1 with the MCPTT Client being active. During the attach a default EPS bearer context #3 (QCI 69) according to table 6.6.1-1, TS 36.508 [6] is established for for MCPTT and SIP signalling. The UE is allowed to operate on both PLMN1 and PLMN2.

NOTE 1: The assumptions for the PDN support of a MCPTT capable UE, including the default EPS bearer context QCI requirements in regard to the different PDN are described in 5.4.1A.

- The UE has performed the Generic Test Procedure for MCPTT Authorization/Configuration and Key Generation as specified in subclause 5.3.2 and thereby the MCPTT client is authorised for and able to use the MCPTT service including making group and private calls on- and off-network, and, the MCPTT user is registered for receiving MCPTT service through the MCPTT Client. The PLMN1 is set as HPLMN and PLMN2 is set as VPLMN in Table 5.5.8.1-1: MCPTT Initial UE Configuration Defaults.

- Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

### 5.4.9.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used.

### 5.4.9.3 Procedure

Table 5.4.9.3-1 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" ... "Tn" are to be applied subsequently. The exact instants on which these values shall be applied are described elsewhere in the present clause.

**Table 5.4.9.3-1: Time instances of cell power level and parameter changes**

| | Parameter | Unit | Cell 1 | Cell 2 | Cell 4 |
|---|---|---|---|---|---|
| T0 | Cell-specific RS EPRE | dBm/15k Hz | -79 | "Off" | "Off" |
| T1 | Cell-specific RS EPRE | dBm/15k Hz | "Off" | -79 | "Off" |
| T2 | Cell-specific RS EPRE | dBm/15k Hz | "Off" | "Off" | -79 |

**Table 5.4.9.3-2: EUTRA/EPS signalling for UE changing cells**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | The SS configures:<br>Cell 1 and Cell 2 parameters according to the row "T1" in table 5.4.9.3-1 in order to simulate needs for cell reselection to Cell2. | - | - |
| 2 | Wait for 5 sec to allow the UE to adjust to cell changes.<br>NOTE 1. | - | - |
| 3 | The SS configures:<br>Cell 2 and Cell 4 parameters according to the row "T2" in table 5.4.9.3-1 in order to simulate needs for cell reselection to Cell4. | - | - |
| 4 | The Generic test procedure for 'Tracking area updating procedure' defined in TS 36.508 [6] subclause 4.5A.2 take place.<br>NOTE 2. | - | - |
| NOTE 1: Depending on implementation the UE may start transmitting MCPTT protocol relevant data earlier. What may be transmitted is specified in the TCs.<br>NOTE 2: The UE may start transmitting MCPTT protocol relevant data as soon as it receives TRACKING AREA UPDATE ACCEPT message. If this happens the SS shall not execute step 7 of the Generic test procedure for 'Tracking area updating procedure' and shall continue with the rest of the messages exchange defined in the test case. | | | |

### 5.4.9.4 Specific message contents

None.

## 5.4.10 Generic Test Procedure for MCPTT CT communication over ProSe direct one-to-many communication out of E-UTRA coverage / Announcing/Discoveree procedure for group member discovery

### 5.4.10.1 Initial 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 [6], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator configured to simulate a location in the centre of Geographical area #1 and providing timing reference as defined in TS 36.508 [6] Table 4.11.2-2 scenario #1, for the assistance of E-UTRAN off-network testing.

NOTE: For operation in off-network environment, it needs to be ensured that after the UE is powered up it considers the Geographical area #1 as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

IUT:

- UE (MCPTT client)
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

UE state:

- The UE is in state Switched OFF (state 1) according to TS 36.508 [6].

### 5.4.10.2 Definition of system information messages

N/a (out of E-UTRA coverage)

5.4.10.3 Procedure

**Table 5.4.10.3-1: ProSe Direct Discovery for public safety use / Announcing/Discoveree procedure for group member discovery for MCPTT off-network CT group calls**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Power up the UE. | - | - |
| 2 | Wait for 60 sec to allow the UE to determine that it is in the Geographical area #1 set in the USIM for operation when UE is "not served by E-UTRAN and acquire reference timing. | - | - |
| - | EXCEPTION: Steps 3a1-3b3b1 describe events which depend on the UE capabilities; the "lower case letter" identifies a step sequence that takes place if the UE is capable or not of Announcing for group member discovery. | - | - |
| 3a1 | IF pc_ProSeAnnForGroupMemberDiscovery (TS 36.523-2 [75]) THEN Force the UE upper layer application corresponding to ProSe Application ID px_ProSeAnnApplicationIdentity2 (TS 36.523-3 [74]) to initiate continuous announcing its availability in a discovery group.<br>NOTE 1. | - | - |
| 3a2 | The UE transmits in the next transmission period a PC5_DISCOVERY message for Group Member Discovery Announcement applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message. | --> | PC5_DISCOVERY |
| 3b1 | ELSE SS sets WaitForMessageCounter=1 | - | - |
| - | EXCEPTION: Steps 3b2-3b3b1 are repeated until the event described in step 3b3a1 takes place OR WaitForMessageCounter=11. | - | - |
| 3b2 | SS-UE1 transmits in the next transmission period a PC5_DISCOVERY message for Group Member Discovery Solicitation applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message.<br><br>WaitForMessageCounter=WaitForMessageCounter+1 | <-- | PC5_DISCOVERY |
| - | EXCEPTION: Steps 3b3a1-3b3b1 describe events which depend on the UE behaviour; the "lower case letter" identifies a step sequence that take place if the UE transmit or not in the next transmission period a PC5_DISCOVERY message. | - | - |
| 3b3a1 | The UE transmits in the next transmission period a PC5_DISCOVERY message for Group Member Discovery Response applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message and including the target Discovery Group ID of the discovery group to be discovered in step 3b2. | --> | PC5_DISCOVERY |
| 3b3b1 | The WaitForMessageCounter=11. | - | - |
| - | EXCEPTION: Steps 4 and 5 may be repeated multiple times depending on the MCPTT procedure taking place. | - | - |
| - | EXCEPTION: Step 4 is repeated until the MCPTT protocol data unit provided by the higher layers is transmitted in full.<br>NOTE 2. | - | - |
| 4 | SS-UE1 sends sidelink communication over the PC5 interface in the next transmission period using the timing reference provided by the GNSS simulator (same to be used by the UE).<br>NOTE 3. | <-- | *STCH PDCP SDU packet* |
| - | EXCEPTION: Step 5 is repeated until the MCPTT protocol data unit provided by the higher layers is transmitted in full.<br>NOTE 4. | - | - |
| 5 | The UE sends sidelink communication over the PC5 interface in the next transmission period using the timing reference provided by the GNSS simulator (same to be used by the SS-UE1).<br>NOTE 3. | --> | *STCH PDCP SDU packet* |

NOTE 1: UEs which are capable of Announcing for group member discovery may start announcement automatically.
NOTE 2: The SS-UE1 may need to send more than one MCPTT protocol data unit in sequence with no response expected between them from the UE.
NOTE 3: What MCPTT protocol data units are included in the sidelink communication is defined in the test case using the present generic procedure.
NOTE 4: The UE may need to send more than one MCPTT protocol data unit in sequence with no response expected between them from the SS-UE1.

5.4.10.4 Specific message contents

**Table 5.4.10.4-1: PC5_DISCOVERY (step 3a2 Table 5.4.10.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5A. |
|---|

**Table 5.4.10.4-2: PC5_DISCOVERY (step 3b2 Table 5.4.10.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5B. |
|---|

**Table 5.4.10.4-3: PC5_DISCOVERY (step 3b3a1 Table 5.4.10.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5C. |
|---|

## 5.4.11 Generic Test Procedure for MCPTT 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

5.4.11.1 Initial 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 [6], configured for and operating as ProSe Direct Communication transmitting and receiving device.
- GNSS simulator configured to simulate a location in the centre of Geographical area #1 and providing timing reference as defined in TS 36.508 [6] Table 4.11.2-2 scenario #1, for the assistance of E-UTRAN off-network testing.

NOTE: For operation in off-network environment, it needs to be ensured that after the UE is powered up it considers the Geographical area #1 as being one of the geographical areas set in the USIM for operation when UE is "not served by E-UTRAN".

IUT:

- UE (MCPTT client)
  - The test USIM set as defined in subclause 5.5.10 is inserted.
  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

UE state:

- The UE is in state Switched OFF (state 1) according to TS 36.508 [6].

5.4.11.2 Definition of system information messages

N/a (out of E-UTRA coverage)

5.4.11.3 Procedure

**Table 5.4.11.3-1: ProSe Direct Discovery for public safety use / Monitoring/Discoverer procedure for group member discovery for MCPTT off-network CO group calls**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | Power up the UE. | - | - |
| 2 | Wait for 60 sec to allow the UE to determine that it is in the Geographical area #1 set in the USIM for operation when UE is "not served by E-UTRAN and acquire reference timing. | - | - |
| - | EXCEPTION: Steps 3a1-3b3 describe events which depend on the UE capabilities; the "lower case letter" identifies a step sequence that takes place if the UE is capable or not of Monitoring for group member discovery. | - | - |
| 3a1 | IF pc_ProSeMonForGtoupMemberDiscovery (TS 36.523-2 [75]) THEN the SS-UE1 starts continuously transmitting in the relevant transmission periods a PC5_DISCOVERY message for Group Member Discovery Announcement applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message. | <-- | PC5_DISCOVERY |
| 3b1 | ELSE Force the UE upper layer application corresponding to ProSe Application ID px_ProSeAnnApplicationIdentity2 (TS 36.523-3 [74]) to solicit proximity of other UEs in a discovery group. NOTE 1. | - | - |
| 3b2 | The UE transmits in the next transmission period a PC5_DISCOVERY message for Group Member Discovery Solicitation applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message. | --> | PC5_DISCOVERY |
| 3b3 | SS-UE1 transmits a PC5_DISCOVERY message for Group Member Discovery Response applying DUIK, DUSK, and DUCK with the associated Encrypted Bitmask, along with the UTC-based counter to the PC5_DISCOVERY message and including the target Discovery Group ID of the discovery group to be discovered in step 2b2. | <-- | PC5_DISCOVERY |
| - | EXCEPTION: Steps 4 and 5 may be repeated multiple times depending on the MCPTT procedure taking place. | - | - |
| - | EXCEPTION: Step 4 is repeated until the MCPTT protocol data unit provided by the higher layers is transmitted in full. NOTE 2. | - | - |
| 4 | The UE sends sidelink communication over the PC5 interface in the next transmission period using the timing reference provided by the GNSS simulator (same to be used by the SS-UE1). NOTE 3. | --> | *STCH PDCP SDU packet* |
| - | EXCEPTION: Step 5 is repeated until the MCPTT protocol data unit provided by the higher layers is transmitted in full. NOTE 4. | - | - |
| 5 | SS-UE1 sends sidelink communication over the PC5 interface in the next transmission period using the timing reference provided by the GNSS simulator (same to be used by the UE). NOTE 3. | <-- | *STCH PDCP SDU packet* |

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| NOTE 1: UEs which are not capable of Monitoring for group member discovery may start Discoverer procedure automatically.<br>NOTE 2: The UE may need to send more than one MCPTT protocol data unit in sequence with no response expected between them from the SS-UE1.<br>NOTE 3: Which MCPTT protocol data units are included in the sidelink communication is defined in the test case using the present generic procedure.<br>NOTE 4: The SS-UE1 may need to send more than one MCPTT protocol data unit in sequence with no response expected between them from the UE. | | | |

5.4.11.4 Specific message contents

**Table 5.4.11.4-1: PC5_DISCOVERY (step 3a1 Table 5.4.11.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5A. |
|---|

**Table 5.4.11.4-2: PC5_DISCOVERY (step 3b2 Table 5.4.11.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5B. |
|---|

**Table 5.4.11.4-3: PC5_DISCOVERY (step 3b3 Table 5.4.11.3-1)**

| Derivation path: 36.508 [6], Table 4.7F.1-5C. |
|---|

## 5.4.12 Generic Test Procedure for MCPTT communication over MBMS

5.4.12.1 Initial conditions

System Simulator:

- SS (MCPTT server)
- SS E-UTRA
  - E-UTRA related parameters are set to the default parameters for the basic single cell environment, as defined in TS 36.508 [6] subclause 4.4, unless otherwise specified in the test case.
  - MBSFNAreaConfiguration as defined in TS 36.508[6] table 4.6.1-4A is transmitted on MCCH

IUT:

- UE (MCPTT client):
  - E-UTRAN UE supporting MBMS services. The UE has performed the Generic Test Procedure for MCPTT UE registration as specified in subclause 5.4.2 and is in E-UTRA Registered, Idle Mode state. The UE is made interested in receiving MBMS service in the PLMN of Cell 1 with MBMS Service ID 0.
  - Detailed initial conditions for the UE (MCPTT client) shall be specified in the TC referring to the present procedure.

5.4.12.2 Definition of system information messages

The E-UTRA default system information messages as defined in TS 36.508 [6] are used. System information combination 15 as defined in TS 36.508[6] subclause 4.4.3.1 is used in the E-UTRA cell.

5.4.12.3 Procedure

**Table 5.4.12.3-1: MCPTT communication over MBMS**

| St | Procedure | Message Sequence | |
|---|---|---|---|
| | | U - S | Message |
| 1 | SS transmits *MBSFNAreaConfiguration* message | <-- | *MBSFNAreaConfiguration* |
| 2 | Wait for a period equal to the MCCH modification period for the UE to receive *MBSFNAreaConfiguration* message. | - | - |
| - | EXCEPTION: Step 3 is repeated continuously to carry the relevant MCPTT protocol data units provided by the higher layers. | - | - |
| 3 | The SS transmits 1 MBMS Packet on the MTCH in the next MCH Scheduling Period.<br><br>NOTE: Which MCPTT protocol data units are sent and at which time is defined in the test case using the present generic procedure. | <-- | MBMS Packet |

5.4.12.4 Specific message contents

None.

# 5.5 Default message and other information elements content

## 5.5.1 General

The following conditions apply throughout subclause 5.5:

**Table 5.5.1-1: Conditions**

| Condition | Explanation |
|---|---|
| ON-NETWORK | Message/IE sent only in on-network scenario. |
| OFF-NETWORK | Message/IE sent only in off-network scenario. |
| PRIVATE-CALL | Message/IE sent only as part of a Private call handling. |
| GROUP-CALL | Message/IE sent only as part of a Group call handling. |
| EMERGENCY-CALL | Message/IE sent only as part of an Emergency call handling. |
| IMMPERIL-CALL | Message/IE sent only as part of an Immanent Peril call handling. |
| EMERGENCY-ALERT | Message/IE sent only as part of an Emergency Alert. |
| CONFIG | Message/IE sent only in configuration/authentication/authorisation scenario. |
| GROUPCONFIG | Message/IE sent only in group configuration scenario. |
| UDP | UE uses UDP for sending a request (this implies UDP to be used for a corresponding response) |
| TCP | UE uses TCP for sending a request (this implies TCP to be used for a corresponding response) |
| MO_CALL | Call (dialog) as been initiated by the UE (mobile originated call) |
| MT_CALL | Call (dialog) as been initiated by the SS (mobile terminated call) |
| MCPTT | MCPTT specific message content |
| MCVIDEO | MCVideo specific message content |
| MCDATA | MCData specific message content |

## 5.5.2 Default SIP message and other information elements

### 5.5.2.1 SIP ACK

#### 5.5.2.1.1 SIP ACK from the UE

**Table 5.5.2.1.1-1: SIP ACK from the UE**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.2, A.2.2.4.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "ACK" | | | |
| Request-URI | same URI as the SS has sent earlier in the Contact header of a response within the same dialog | | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | Same value as in INVITE message | | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| route-param list | URIs of the Record-Route header sent to the UE in the response which has established the dialog, in reverse order | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE message | Local URI of the dialog (from the UE's point of view) | | |
| tag | same value as in the INVITE | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE | Remote URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the To-header of the response which has established the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same value as in INVITE message | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | same value as in INVITE message | | | |
| method | "ACK" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **Content-Length** | if present | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

5.5.2.1.2 SIP ACK from the SS

**Table 5.5.2.1.2-1: SIP ACK from the SS**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.2, A.2.2.4.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "ACK" | | | |
| Request-URI | same URI as the UE has sent earlier in the Contact header of a response within the same dialog | Contact URI of the UE ("callee") | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | same as in the INVITE but with updated via-branches in case of an ACK for 2xx response | see Table 5.5.2.5.2-1 | RFC 3261 [22] | |
| **Route** | not present | | RFC 3261 [22] | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same URI as in the From-header of the INVITE | remote URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the From-header of the INVITE | remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same URI as in the To-header of the INVITE | local URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the To-header of the response which has established the dialog | local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Same value as in INVITE | Call-Id of the dialog | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | Same value as in INVITE | | | |
| method | "ACK" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

### 5.5.2.2 SIP BYE

#### 5.5.2.2.1 SIP BYE from the UE

**Table 5.5.2.2.1-1: SIP BYE from the UE**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.3, A.2.2.4.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "BYE" | | | |
| Request-URI | same URI as the SS has sent earlier in the Contact header of a message within the same dialog | Contact URI of the recipient of the BYE | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | same value as in INVITE message | | | MO_CALL |
| sent-by | | | | MT_CALL |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| route-param list | URIs of the Record-Route header sent to the UE in the response which has established the dialog, in reverse order | | | MO_CALL |
| | URIs of the Record-Route header sent to the UE in the INVITE | | | MT_CALL |
| **From** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the SS as used earlier in the dialogURI | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same value as in INVITE message | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | |
| method | "BYE" | | | |
| **Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Security-Verify** | | | RFC 3329 [53] | |
| sec-mechanism | same value as Security -Server header sent by SS during registration | | | |

| | | | | |
|---|---|---|---|---|
| **Max-Forwards** | | | RFC 3261[22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52]<br>RFC 7913 [51] | |
| access-net-spec | Access network technology and, if applicable, the cell ID | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_User_A_ID | The URI of the UE | | |
| port | not present | | | |
| **Content-Length** | if present | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

5.5.2.2.2 SIP BYE from the SS

**Table 5.5.2.2.2-1: SIP BYE from the SS**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.3, A.2.2.4.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "BYE" | | | |
| Request-URI | same URI as the UE has sent earlier in the Contact header of a response within the same dialog | Contact URI of the UE ("callee") | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | same as specified for INVITE sent by the SS in Table 5.5.2.5.2- | | RFC 3261 [22] | MO_CALL |
| **Via** | same as in INVITE but with updated via-branches | | RFC 3261 [22] | MT_CALL |
| **Route** | Not present | | RFC 3261 [22] | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the SS as used earlier in the dialog | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same value as in INVITE message | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | |
| method | "BYE" | | | |
| **Max-Forwards** | | | RFC 3261[22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | The URI of the SS | | |
| port | not present | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

### 5.5.2.3 SIP CANCEL

This message is sent by the SS.

**Table 5.5.2.3-1: SIP CANCEL**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.4, A.2.2.4.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "CANCEL" | | | |
| Request-URI | same value as in the INVITE being cancelled | | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] | |
| via-parm | same value as in the INVITE being cancelled | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE being cancelled | | | |
| tag | same value as in the INVITE being cancelled | | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE being cancelled | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| Callid | same value as in the INVITE being cancelled | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | same value as in the INVITE being cancelled | | | |
| Method | "CANCEL" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

### 5.5.2.4 SIP INFO

This message is sent by the SS.

**Table 5.5.2.4-1: SIP INFO**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.6, A.2.2.4.6 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| Method | "INFO" | | | |
| Request-URI | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | |
| sent-by | any allowed value | IP address or FQDN and protected server port of the UE | | |
| via-branch | any allowed value | Value starting with 'z9hG4bK' | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| tag | "1" | | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| **Call-ID** | | | RFC 3261 [22] | |
| Callid | same value as in the INVITE | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the SS within its previous request in the same dialog but increased by one | | | |
| Method | "INFO" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | length of message body | | | |
| **Message Body** | any allowed value | | | |

Editor's note: Table 5.5.2.4-1 needs to be reviewed

### 5.5.2.5 SIP INVITE

#### 5.5.2.5.1 SIP INVITE from the UE

**Table 5.5.2.5.1-1: SIP INVITE from the UE**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "INVITE" | | | |
| Request-URI | px_MCPTT_Server_A_URI | The public service identity identifying the participating MCPTT function serving the MCPTT user | | |
| | px_MCVideo_Server_A_URI | The public service identity identifying the participating MCVideo function serving the MCVideo user | | MCVIDEO |
| | px_MCData_Server_A_URI | The public service identity identifying the participating MCData function serving the MCData user | | MCDATA |
| Request-URI | same URI as the SS has sent earlier in the Contact header of a message within the same dialog | Contact URI of the recipient of the BYE | | re_INVITE |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | UE accesses the server via UDP | | UDP |
| | "SIP/2.0/TCP" | UE accesses the server via TCP | | TCP |
| sent-by | | | | |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| addr-spec[1] | SIP URI | | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | "scscf.3gpp.org" | same value as in the Service-Route header field of the 200 OK response to REGISTER | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Route** | | | RFC 3261 [22] | re_INVITE |
| route-param list | URIs of the Record-Route header sent to the UE in the response which has established the dialog, in reverse order | | | MO_CALL |
| | URIs of the Record-Route header sent to the UE in the INVITE | | | MT_CALL |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| port | any value if present | | | |
| tag | any value | | | |
| **From** | | | RFC 3261 [22] | re_INVITE |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | Same URI as Request-URI | | | |
| port | not present | | | |
| tag | not present | | | |
| **To** | | | RFC 3261 [22] | re_INVITE |
| addr-spec | Same URI of the SS as used earlier in the dialogURI | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | any allowed value | | | |
| **Call-ID** | | | RFC 3261 [22] | re_INVITE |
| callid | same value as in INVITE creating the dialog | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | any allowed value | | | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | re_INVITE |
| method | "INVITE" | | | |
| **Supported** | | | RFC 3261 [22] | |
| option-tag | "timer" | | | |
| **Session-Expires** | | | RFC 4028 [30] | |
| delta-seconds | any allowed value | | | |
| **Require** | | | RFC 3261 [22] RFC 3312 [56] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| Security-Verify | | | RFC 3329 [53] | |
| sec-mechanism | same value as Security-Server header sent by SS during registration | | | |
| **Contact** | | | RFC 3261 [22 RFC 3840 [33] | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_ID) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| port | protected server port of UE | as assigned during registration | | |
| feature-param | "+g.3gpp.mcptt" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Push To Talk (MCPTT) communication. | | |
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports mission critical data (MCData) service.communication. | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | This URN indicates that the device has the capabilities to support the mission critical push to talk (MCPTT) service. | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the Mission Critical Video (MCVideo) communication. | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | | MCDATA |
| feature-param | "audio" | This feature tag indicates that the device supports audio as a streaming media type. | | MCPTT OR MCVideo |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] | |
| access-net-specs | Access network technology and, if applicable, the cell ID | AUTO | | |
| **Accept** | | | RFC 3261 [22] | |
| media-range[1] | "application/sdp" | | | |
| media-range[2] | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | application/vnd.3gpp.mcvideo-info+xml | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| **P-Preferred-Service** | | | RFC 6050 [31] | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| **P-Preferred-Identity** | | | RFC 3325 [32] | |
| PPreferredID-value | same URI as in From-header | | | |
| **Accept-Contact** | | | RFC 3841 [29] | |
| ac-value | | | | |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| ac-value[2] | | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| **Answer-Mode** | | | RFC 5373 [34] | |
| answer-mode-value | "Auto" | | | |
| answer-mode-value | "Manual" | | | MANUAL |
| **Resource-Priority** | | | RFC 4412 [40] RFC 7134 [57] RFC 8101 [45] | EMERGENCY-CALL or IMMPERIL-CALL |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| r-value | | | | EMERGENCY-CALL |
| namespace | value of the <resource-priority-namespace> element contained in the <emergency-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration documents | | | |
| r-priority | value of the <resource-priority-priority> element contained in the <emergency-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration document | | | |
| r-value | | | | IMMPERIL-CALL |
| namespace | value of the <resource-priority-namespace> element contained in the <imminent-peril-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration documents | | | |
| r-priority | value of the <resource-priority-priority> element contained in the <imminent-peril-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration document | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **SDP message** | | |
| MIME-part-headers | | | | |
| **Content-Type** | "application/sdp" | | RFC 4566 [27] | |
| MIME-part-body | SDP Message as described in Table 5.5.3.1.1-1 | | | |
| | SDP Message as described in Table 5.5.3.1.1-2 | | | MCVIDEO |
| | SDP Message as described in Table 5.5.3.1.1-3 | | | MCDATA |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME body part | | **MCPTT Info/MCVideo/MCData** | | |
| MIME-part-headers | | | | |
| **Content-Type** | "application/vnd.3gpp. mcptt-info+xml" | | | |
| | "application/vnd.3gpp. mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp. mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |
| MIME body part | | **Resource list** | RFC 5366 [35] | PRIVATE-CALL OR MCD_1to1 |
| MIME-part-headers | | | | |
| **Content-Type** | "application/resource-lists+xml" | | | |
| MIME-part-body | As described in Table 5.5.3.3.1-1 | | | |
| | As described in Table 5.5.3.3.1-2 | | | MCVIDEO |
| | As described in Table 5.5.3.3.1-3 | | | MCDATA |
| MIME body part | | Location info | | EMERGENCY-ALERT |
| MIME-part-headers | | | | |
| **Content-Type** | "application/vnd.3gpp. mcptt-location-info+xml" | This MIME part shall be included if the MCPTT-Info 'alert-ind' element sent in the MCPTT-Info is set to true. | | |
| | "application/vnd.3gpp. mcvideo-location-info+xml" | This MIME part shall be included if the MCVideo-Info 'alert-ind' element sent in the MCVideo-Info is set to true. | | MCVIDEO |
| MIME-part-body | Location-info as described in Table 5.5.3.4.1-1 | | TS 24.379 [9] clause F.3 | |
| | Location-info as described in Table 5.5.3.4.1-2 | | TS 24.281 [86] clause F.3 | MCVIDEO |
| MIME body part | | **MIKEY message** | | MCD_1to1 |
| MIME-part-headers | | | | |
| **Content-Type** | "application/mikey" | | | |
| MIME-part-body | As described in Table 5.5.9.1-2 | MIKEY message, containing the PSK | TS 33.180 [30] TS 24.282 [87] | |

| Condition | Explanation |
|---|---|
| MANUAL | Call etablishment with manual commencement mode |
| MCD_1to1 | A one-to-one MCData call |
| re_INVITE | INVITE within a dialog |
| For further conditions see table 5.5.1-1 | |

5.5.2.5.2 SIP INVITE from the SS

**Table 5.5.2.5.2-1: SIP INVITE from the SS**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "INVITE" | | | |
| Request-URI | SIP URI of the UE's contact address as provided in the Contact-header of the REGISTER message | | | |
| Request-URI | same URI as the UE has sent earlier in the Contact header of a response within the same dialog | Contact URI of the UE ("callee") | | re_INVITE |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol[1] | "SIP/2.0/TCP" | | | |
| sent-by[1] | | Address of the P-CSCF that communicates with the called party | | |
| host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| via-branch[1] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| sent-protocol[2] | "SIP/2.0/UDP" | | | |
| sent-by[2] | | Address of the other endpoint (the caller) | | |
| host | Host name of the SIP URI being used in the From header | | | |
| port | Same port number as in Contact-header | Caller's port number | | |
| via-branch[2] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| **Record-Route** | | Record-Route corresponding to the Via header | RFC 3261 [22] | |
| addr-spec[1] | SIP URI | SIP URI corresponding to first entry of Via header | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | "term@scscf1.3gpp.org" | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| addr-spec[3] | SIP URI | | | |
| user-info and host | "orig@scscf2.3gpp.org" | | | |
| port | not present | | | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| uri-parameters | "lr" | | | |
| addr-spec[4] | SIP URI | | | |
| user-info and host | “pcscf2.3gpp.org” | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Record-Route** | same as in the 180, 183 or 200 response sent to the UE during MO call establishment in reverse order | | RFC 3261 [22] | re_INVITE AND MO_CALL |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_B_URI | SIP URI of the calling UE Editor’s note: to be checked whether PIXIT is needed | | |
| | px_MCVideo_Client_B_URI | SIP URI of the calling UE | | MCVIDEO |
| | px_MCData_Client_B_ID | SIP URI of the calling UE | | MCDATA |
| port | not present | | | |
| tag | Value assigned by the SS | | | |
| **From** | | | RFC 3261 [22] | re_INVITE |
| addr-spec | Same URI of the SS as used earlier in the dialog | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | |
| | px_MCVideo_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | MCVIDEO |
| | px_MCData_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | MCDATA |
| port | not present | | | |
| tag | not present | | | |
| **To** | | | RFC 3261 [22] | re_INVITE |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Value assigned by the SS | | | |
| **Call-ID** | | | RFC 3261 [22] | re_INVITE |
| callid | same value as in INVITE creating the dialog | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | Value assigned by the SS | | | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | re_INVITE |
| method | "INVITE" | | | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Supported** | | | RFC 3261 [22] | |
| option-tag | "100rel" | This option tag indicates that the UA can send or receive reliable provisional responses. | | |
| option-tag | "timer" | | | |
| option-tag | "tdialog" | | | |
| option-tag | "norefersub" | | | |
| **P-Called-Party-ID** | | | RFC 7315 [52] | |
| called-pty-id-spec | px_MCPTT_Client_A_ID | same user ID as in To-header | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| **Session-Expires** | | | RFC 4028 [30] | |
| generic-param | "1800" | The recommended initial value is 1800 in RFC 4028 [30]. | | |
| **P-Early-Media** | | | RFC 5009 [60] | |
| em-parm | "inactive" | | | |
| **Require** | | | RFC 3261 [22]<br>RFC 3312 [56]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | same URI as in From-header | | | |
| port | not present | | | |
| **Contact** | | | RFC 3261 [22]<br>RFC 3840 [33] | |
| addr-spec | SIP URI | | | |
| user-info and host | px_MCPTT_Client_B_ID | Editor's note: to be checked whether PIXIT is needed | | |
| | px_MCVideo_Client_B_ID | | | MCVIDEO |
| | px_MCData_Client_B_ID | | | MCDATA |
| port | Value assigned by the SS | | | |
| feature-param | "+g.3gpp.mcptt" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Push To Talk (MCPTT) communication. | RFC 3840 [33] clause 9 | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | RFC 3840 [33] clause 9 | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Data (MCData) communication. | RFC 3840 [33] clause 9 | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | This URN indicates that the device has the capabilities to support the mission critical push to talk (MCPTT) service. | RFC 3840 [33] clause 9 | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the mission critical video (MCVideo) service. | RFC 3840 [33] clause 9 | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | RFC 3840 [33] clause 9 | MCDATA |
| feature-param | "audio" | This feature tag indicates that the device supports audio as a streaming media type. | RFC 3840 [33] subclause 10.1 | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| feature-param | "isfocus" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261 [22]. | | |
| **Accept** | | | RFC 3261 [22] | |
| media-range[1] | "application/sdp " | | | |
| media-range[2] | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| **P-Preferred-Service** | | | RFC 6050 [31] | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| **P-Preferred-Identity** | | | RFC 3325 [32] | |
| PPreferredID-value | same URI as in From-header | | | |
| **Accept-Contact** | | | RFC 3841 [29] | |
| ac-value[1] | | | | |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| ac-value[2] | | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| **Answer-Mode** | | | RFC 5373 [34] | |
| answer-mode-value | "Auto" | | | |
| answer-mode-value | "Manual" | | | MANUAL |
| **Resource-Priority** | | | RFC 4412 [40]<br>RFC 7134 [57]<br>RFC 8101 [45] | EMERGENCY-CALL or IMMPERIL-CALL |
| r-value | | | | EMERGENCY-CALL |
| namespace | value of the <resource-priority-namespace> element contained in the <emergency-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration documents | | | |
| r-priority | value of the <resource-priority-priority> element contained in the <emergency-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration document | | | |
| r-value | | | | IMMPERIL-CALL |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| namespace | value of the <resource-priority-namespace> element contained in the <imminent-peril-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration documents | | | |
| r-priority | value of the <resource-priority-priority> element contained in the <imminent-peril-resource-priority> element contained in the <OnNetwork> element of the MCX service configuration document | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | length of message-body | | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **SDP message** | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/sdp" | | | |
| MIME-part-body | SDP Message as described in Table 5.5.3.1.2-1 | | RFC 4566 [27] | |
| | SDP Message as described in Table 5.5.3.1.2-2 | | RFC 4566 [27] | MCVIDEO |
| | SDP Message as described in Table 5.5.3.1.2-3 | | RFC 4566 [27] | MCDATA |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.2-1 | | | |
| | MCVideo-Info as described in Table 5.5.3.2.2-2 | | | MCVIDEO |
| | As described in Table 5.5.3.2.1-3 | | | MCDATA |
| MIME body part | | **Resource lists** | RFC 5366 [35] | PRIVATE-CALL |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/resource-lists+xml" | | | |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.2-1 | | | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7, A.2.2.4.7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | Resource-lists as described in Table 5.5.3.3.2-2 | | | MCVIDEO |
| | Resource-lists as described in Table 5.5.3.3.2-3 | | | MCDATA |
| MIME body part | | **Location info** | | EMERGENCY-CALL or IMMPERIL-CALL |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-location-info+xml" | | | |
| MIME-part-body | Location-info as described in Table 5.5.3.4.2-1 | | TS 24.379 [9] clause F.3 | |
| | Location-info as described in Table 5.5.3.4.2-2 | | TS 24.281 [86] clause F.3 | |
| MIME body part | | **MIKEY message** | | MCD_1to1 |
| MIME-part-headers | | | | |
| **Content-Type** | "application/mikey" | | | |
| MIME-part-body | As described in Table 5.5.9.1-2 | MIKEY message, containing the PSK | TS 33.180 [30] TS 24.282 [87] | |

| Condition | Explanation |
|---|---|
| MANUAL | Call establishment with manual commencement mode |
| re_INVITE | INVITE within a dialog |
| MCD_1to1 | A one-to-one MCData call |
| For further conditions see table 5.5.1-1 | |

#### 5.5.2.6 Void

#### 5.5.2.7 SIP MESSAGE

##### 5.5.2.7.1 SIP MESSAGE from the UE

**Table 5.5.2.7.1-1: SIP MESSAGE**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7a, A.2.2.4.7a | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22]<br>RFC 5031 [54] | |
| Method | "MESSAGE" | | | |
| Request-URI | px_MCPTT_Server_A_URI | The public service identity identifying the originating participating MCPTT function serving the MCPTT user | | |
| | px_MCVideo_Server_A_URI | The public service identity identifying the originating participating MCVideo function serving the MCVideo user | | MCVIDEO |
| | px_MCData_Server_A_URI | The public service identity identifying the originating participating MCData function serving the MCData user | | MCDATA |
| SIP-Version | "SIP/2.0″ | | | |
| **Via** | | | RFC 3261 [22]<br>RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | | | | |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_A_ID | The URI of the UE | | |
| | px_MCVideo_Client_A_ID | The URI of the UE | | MCVIDEO |
| | px_MCData_Client_A_ID | The URI of the UE | | MCDATA |
| port | any value if present | | | |
| tag | any allowed value | | | |
| **To** | | | RFC 3261 [22]<br>RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | The URI of the SS | | |
| | px_MCVideo_Server_A_URI | The URI of the SS | | MCVIDEO |
| | px_MCData_Server_A_URI | The URI of the SS | | MCDATA |
| port | not present | | | |
| tag | not present | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | any allowed value | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | any allowed value | | | |
| method | "MESSAGE" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] | |

| | | | | |
|---|---|---|---|---|
| access-net-spec | Access network technology and, if applicable, the cell ID | | | |
| **Route** | same as specified for INVITE sent by the UE in Table 5.5.2.5.1-1 | | RFC 3261 [22] | |
| **P-Preferred-Service** | | | RFC 6050 [31] | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | | MCDATA |
| MIME body part | | **Affiliation-Command** | | MCPTT OR MCVideo |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-affiliation-command+xml" | | | |
| | "application/vnd.3gpp.mcvideo-affiliation-command+xml" | | | |
| MIME-part-body | MCPPT-Affiliation-Command as described in Table 5.5.3.7-1 | | TS 24.379 [9] clause F.4 | |
| | MCVideo-Affiliation-Command as described in Table 5.5.3.7-2 | | TS 24.281 [86] clause F.4 | |
| MIME body part | | **Resource lists** | RFC 5366 [35] | PRIVATE-CALL OR MCD_1to1 |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/resource-lists+xml" | | | |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.1-1 | | | |

| | | | | |
|---|---|---|---|---|
| | Resource-lists as described in Table 5.5.3.3.1-2 | | | MCVIDEO |
| | As described in Table 5.5.3.3.1-3 | | | MCDATA |
| MIME body part | | **Location info** | TS 24.379 [9] clause F.3 | EMERGENCY-ALERT |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | This MIME part shall be included if the MCPTT-Info 'alert-ind' element sent in the MCPTT-Info is set to true. | | |
| MIME-part-body | Location-info as described in Table 5.5.3.4.1-1 | | | |
| MIME body part | | **MIKEY message** | | MCD_1to1 |
| MIME-part-headers | | | | |
| **Content-Type** | "application/mikey" | | | |
| MIME-part-body | As described in Table 5.5.9.1-2 | MIKEY message, containing the PSK | TS 33.180 [30] TS 24.282 [87] | |
| MIME body part | | **SDS SIGNALLING PAYLOAD** | | MCDATA |
| MIME-part-headers | | | | |
| **Content-Type** | "application/vnd.3gpp.mcdata-signalling" | | | |
| MIME-part-body | As described in Table 5.5.3.8.1-1 | | TS 24.282 [87] | |
| MIME body part | | **DATA PAYLOAD** | | MCDATA |
| MIME-part-headers | | | | |
| **Content-Type** | application/vnd.3gpp.mcdata-payload | | | |
| MIME-part-body | As described in Table 5.5.3.9.1-1 | | TS 24.282 [87] | |

| Condition | Explanation |
|---|---|
| MCD_1to1 | A one-to-one MCData call |
| For further conditions see table 5.5.1-1 | |

### 5.5.2.7.2 SIP MESSAGE from the SS

**Table 5.5.2.7.2-1: SIP MESSAGE from the SS**

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7a, A.2.2.4.7a | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "MESSAGE" | | | |
| Request-URI | SIP URI of the UE's contact address as provided in the Contact-header of the REGISTER message | | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol[1] | "SIP/2.0/TCP" | | | |
| sent-by[1] | | Address of the P-CSCF that communicates with the called party | | |
| ….host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7a, A.2.2.4.7a | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| port | protected server port of the SS | as assigned during registration | | |
| via-branch[1] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| sent-protocol[2] | "SIP/2.0/UDP" | Editor's note: Check whether there really is a second entry | | |
| sent-by[2] | | Address of the other endpoint (the caller) | | |
| ….host | Caller's domain name | Editor's note: to be checked whether PIXIT is needed (px_MCPTT_Client_B_ID) | | |
| port | Value assigned by the SS | Caller's port number | | |
| via-branch[2] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_ID | | | MCVIDEO |
| | px_MCData_Server_A_ID | | | MCDATA |
| port | not present | | | |
| tag | Value assigned by the SS | | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | |
| | px_MCVideo_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | MCVIDEO |
| | px_MCData_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | MCDATA |
| port | not present | | | |
| tag | not present | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Value assigned by the SS | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | Value assigned by the SS | | | |
| method | "MESSAGE" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **P-Preferred-Service** | | | RFC 6050 [31] | MCPTT OR MCVIDEO |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7a, A.2.2.4.7a | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **P-Asserted-Service** | | | RFC 6050 [31] | MCDATA |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | |
| **Accept-Contact** | | | RFC 3841 [29] | MCDATA |
| ac-value[1] | | | | |
| feature-param | “+g.3gpp.mcdata.sds” | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| ac-value[2] | | | | |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | MCDATA |
| name-addr | px_MCData_User_B_ID | The public user identity of the originating MCData User | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | length of message body | | RFC 3261 [22] | |
| value | length of message-body | | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.2-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.2-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.3.2-3 | | TS 24.282 [87] clause D.1.2 | MCDATA |
| MIME body part | | **Affiliation-Command** | | MCPTT OR MCVIDEO |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-affiliation-command+xml" | | | |
| | "application/vnd.3gpp.mcvideo-affiliation-command+xml" | | | MCVIDEO |
| MIME-part-body | MCPPT-Affiliation-Command as described in Table 5.5.3.7-1 | | TS 24.379 [9] clause F.4 | |
| | MCVideo-Affiliation-Command as described in Table 5.5.3.7-2 | | TS 24.281 [86] clause F.4 | MCVIDEO |
| MIME body part | | Resource lists | RFC 5366 [35] | PRIVATE-CALL |
| MIME-part-headers | | | | |

| Derivation Path: TS 24.229 [16], subclause A.2.1.4.7a, A.2.2.4.7a | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME-Content-Type | "application/resource-lists+xml" | | | |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.2-1 | | | |
| | Resource-lists as described in Table 5.5.3.3.2-2 | | | MCVIDEO |
| MIME body part | | Location info | | EMERGENCY-CALL or IMMPERIL-CALL |
| MIME-part-headers | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-location-info+xml" | | | MCVIDEO |
| MIME-part-body | Location-info as described in Table 5.5.3.4.2-1 | | TS 24.379 [9] clause F.3 | |
| | Location-info as described in Table 5.5.3.4.2-2 | | TS 24.281 [86] clause F.3 | MCVIDEO |
| MIME body part | | **SDS SIGNALLING PAYLOAD** | | MCDATA |
| MIME-part-headers | | | | |
| **Content-Type** | "application/vnd.3gpp.mcdata-signalling" | | | |
| MIME-part-body | As described in Table 5.5.3.8.2-1 | | TS 24.282 [87] | |
| MIME body part | | **DATA PAYLOAD** | | MCDATA |
| MIME-part-headers | | | | |
| **Content-Type** | application/vnd.3gpp.mcdata-payload | | | |
| MIME-part-body | As described in Table 5.5.3.9.2-1 | | TS 24.282 [87] | |

### 5.5.2.8 SIP NOTIFY

This message is sent by the SS.

**Table 5.5.2.8-1: SIP NOTIFY**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.8, A2.2.4.8 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "NOTIFY" | | | |
| Request-URI | same URI as the UE has provided earlier in the Contact header of the SUBSCRIBE | | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] | |
| sent-protocol[1] | "SIP/2.0/TCP" | | | |
| sent-by[1] | | | | |
| host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.8, A2.2.4.8 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| port | protected server port of the SS | | | |
| via-branch[1] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| sent-protocol[2] | "SIP/2.0/UDP" | | | |
| sent-by[2] | | | | |
| host | “scscf.3gpp.org“ | | | |
| port | not present | | | |
| via-branch[2] | Value assigned by the SS starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same URI as received in the To header of the SUBSCRIBE message | Remote URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the To-header of the response which has established the dialog | Remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same URI as received in the From header of the SUBSCRIBE message | Local URI of the dialog (from the UE's point of view) | | |
| tag | same value as received in From tag of the SUBSCRIBE message | Local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same as value received in SUBSCRIBE message | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the SS within its previous request in the same dialog but increased by one | | | |
| method | "NOTIFY" | | | |
| **Contact** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| port | not present | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| **Event** | | | RFC 6665 [39] RFC 3842 [61] | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.8, A2.2.4.8 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| event-type | "presence" | | | PRESENCE-EVENT |
| | "xcap-diff" | | | CONFIG GROUPCONFIG |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **Subscription-State** | | | RFC 6665 [39] | |
| substate-value | "active" | | | |
| expires | "7200" | | | |
| **Content-Type** | | | RFC 3261 [22] RFC 3842 [61] | |
| media-type | “multipart/mixed" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | length of message-body | | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **PIDF** | | PRESENCE-EVENT |
| MIME-part-headers | | | | |
| Content-Type | "application/pidf+xml" | | | |
| MIME-part-body | PIDF as described in Table 5.5.3.5-1 | | TS 24.379 [9] subclause 9.3.1 | |
| | PIDF as described in Table 5.5.3.5-2 | | TS 24.281 [86] subclause 8.3.1 | MCVIDEO |
| | PIDF as described in Table 5.5.3.5-3 | | TS 24.282 [87] subclause 8.4.1 | MCDATA |
| MIME body part | | **XCAP root uri** | TS 24.481 [11] | CONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/pidf+xml" | | | |
| MIME-part-body | "uri:xcap_root.mcptt-op.gov:resource-lists" | XCAP root uri of UE configuration documents | | |
| | "uri:xcap_root.mcvideo-op.gov:resource-lists" | XCAP root uri of UE configuration documents | | MCVIDEO |
| | "uri:xcap_root.mcdata-op.gov:resource-lists" | XCAP root uri of UE configuration documents | | MCDATA |
| MIME body part | | **MIKEY message** | | GROUPCONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | RFC 3830 [24] | |
| MIME-part-body | MIKEY message as described in Table 5.5.9.1-3 | MIKEY message, containing the GSK | TS 33.180 [94] | |

| **Condition** | **Explanation** |
|---|---|
| PRESENCE-EVENT | The SIP NOTIFY is notifying a presence event |
| For further conditions see table 5.5.1-1 | |

### 5.5.2.9 SIP OPTIONS

Editor’s note: It shall be specified who is sending the message.

**Table 5.5.2.9-1: SIP OPTIONS**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.9, A2.2.4.9 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| Method | "OPTIONS" | | | |
| Request-Disposition | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | |
| sent-by | any allowed value | IP address or FQDN and protected server port of the UE | | |
| via-branch | any allowed value | Value starting with 'z9hG4bK' | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| tag | "1" | | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| **Call-ID** | | | RFC 3261 [22] | |
| Callid | same value as in the INVITE | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the SS within its previous request in the same dialog but increased by one | | | |
| Method | "INFO" | | | |
| **Contact** | | | RFC 3261 [22 RFC 3840 [33] | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_ID) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| feature-param | "+g.3gpp.mcptt" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Push To Talk (MCPTT) communication. | | |

| | | | | |
|---|---|---|---|---|
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Data (MCData) communication. | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | This URN indicates that the device has the capabilities to support the mission critical push to talk (MCPTT) service. | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the mission critical video (MCVideo) service. | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | | MCDATA |
| feature-param | "audio" | This feature tag indicates that the device supports audio as a streaming media type. | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| **Accept** | | | | |
| media-range | "application/sdp" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.9-1needs to be reviewed

### 5.5.2.10 SIP PRACK

#### 5.5.2.10.1 SIP PRACK from the UE

**Table 5.5.2.10.1-1: SIP PRACK from the UE**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10, A2.2.4.10 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | RFC 3261 [22] | |
| Method | "PRACK" | | | |
| Request-URI | same URI as the SS has sent earlier in the Contact header of a response within the same dialog | | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | same value as in INVITE message | | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| route-param list | URIs of the Record-Route header sent to the UE in the response which has established the dialog, in reverse order | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE message | Local URI of the dialog (from the UE's point of view) | | |
| tag | same value as in the INVITE | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same value as in the INVITE | Remote URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the To-header of the response which has established the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same value as in INVITE message | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | |
| method | "PRACK" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **RAck** | | | RFC 3261 [22] | |
| response-num | same value as in RSeq header of the reliable response | | | |
| cseq-num | same value as in CSeq of reliable response | | | |
| method | same value as in CSeq of reliable response | | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10, A2.2.4.10 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| access-net-spec | Access network technology and, if applicable, the cell ID | | | |
| **Content-Length** | if present | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

### 5.5.2.10.2 SIP PRACK from the SS

**Table 5.5.2.10.2-1: SIP PRACK from the SS**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10, A2.2.4.10 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | RFC 3261 [22] | |
| Method | "PRACK" | | | |
| Request-URI | same URI as the UE has sent earlier in the Contact header of a response within the same dialog | Contact URI of the UE ("callee") | | |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | same as in the INVITE but with updated via-branches | see Table 5.5.2.5.2-1 | RFC 3261 [22] | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | same URI as in the From-header of the INVITE | remote URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the From-header of the INVITE | remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | same URI as in the To-header of the INVITE | local URI of the dialog (from the UE's point of view) | | |
| tag | same tag as in the To-header of the response which has established the dialog | local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Same value as in INVITE | Call-Id of the dialog | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | |
| method | "PRACK" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261. | | |
| **RAck** | | | RFC 3261 [22] | |
| response-num | same value as in RSeq header of the reliable response | | | |
| cseq-num | same value as in CSeq of reliable response | | | |
| method | same value as in CSeq of reliable response | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

### 5.5.2.11 SIP PUBLISH

This message is sent by the UE.

**Table 5.5.2.11-1: SIP PUBLISH**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10A, A.2.2.4.10A | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "PUBLISH" | | | |
| Request-URI | px_MCPTT_Server_A_URI | The public service identity identifying the originating participating MCPTT function serving the MCPTT user | | |
| | px_MCVideo_Server_A_URI | The public service identity identifying the originating participating MCVideo function serving the MCVideo user | | MCVIDEO |
| | px_MCPTT_Server_A_URI | The public service identity identifying the originating participating MCPTT function serving the MCPTT user | | MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Route** | | | RFC 3261 [22] | |
| addr-spec[1] | SIP URI | | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | "scscf.3gpp.org" | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | | | | |
| user-info and host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_A_ID | | | |
| | px_MCVideo_Client_A_ID | | | MCVIDEO |
| | px_MCData_Client_A_ID | | | MCDATA |
| port | any value of present | | | |
| tag | any value | | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10A, A.2.2.4.10A | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | px_MCData_Server_A_URI | | | MCDATA |
| port | not present | | | |
| tag | not present | | | |
| **Expires** | | | RFC 3261 [22]<br>RFC 3903 [43] | |
| delta-seconds | "600000" | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | any allowed value | | | |
| method | "PUBLISH" | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | any allowed value | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | | | |
| **P-Access-Network-Info** | | | RFC 7315 [52]<br>RFC 7913 [51] | |
| access-net-spec | Access network technology and, if applicable, the cell ID | | | |
| **Event** | | | RFC 3903 [43] | |
| event-type | "presence" | | | |
| **P-Preferred-Service** | | | RFC 6050 [31] | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata" | | | MCDATA |
| **Accept** | | | RFC 3261 [22] | |
| media-range | "application/pidf+xml" | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_User_A_ID | | | |
| | px_MCVideo_User_A_ID | | | MCVIDEO |
| | px_MCData_User_A_ID | | | MCDATA |
| port | not present | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional)length of message-body | | RFC 3261 [22] | |
| value | any value | | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.10A, A.2.2.4.10A | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |
| MIME body part | | PIDF | | |
| MIME-part-headers | | | | |
| Content-Type | "application/pidf+xml" | | | |
| MIME-part-body | PIDF as described in Table 5.5.3.5-1 | | TS 24.379 [9] subclause 9.3.1 | |
| | PIDF as described in Table 5.5.3.5-2 | | TS 24.281 [86] subclause 8.3.1 | MCVIDEO |
| | PIDF as described in Table 5.5.3.5-3 | | TS 24.282 [87] subclause 8.3.1 | MCDATA |
| MIME body part | | MIKEY | | CONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | RFC 3830 [24] | |
| MIME-part-body | MIKEY message as described in Table 5.5.9.1-1 | MIKEY message, containing the CSK | TS 33.180 [94] | |

### 5.5.2.12 SIP REFER

This message is sent by the UE within a dialog.

**Table 5.5.2.12-1: SIP REFER**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.11, A.2.2.4.11 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "REFER" | | | |
| Request-URI | px_MCPTT_session_B_ID | | | |
| | px_MCVideo_session_B_ID | | | MCVIDEO |
| | px_MCData_session_B_ID | | | MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | | | | |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| addr-spec[1] | SIP URI | | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | "scscf.3gpp.org" | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | Same URI of the SS as used earlier in the dialogURI | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | same value as in INVITE creating the diaog | | | |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the UE within its previous request in the same dialog but increased by one | | | |
| method | "REFER" | | | |
| **P-Preferred-Identity** | | | RFC 3325 [32] | |
| PPreferredID-value | px_MCPTT_User_A_ID | The public user identity | | |
| | px_MCVideo_User_A_ID | The public user identity | | MCVIDEO |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.11, A.2.2.4.11 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | px_MCData_User_A_ID | The public user identity | | MCDATA |
| **Supported** | | | RFC 3261 [22]<br>RFC 6442 [62]<br>RFC 4488 [36] | |
| option-tag | "norefersub" | | | |
| **Refer-Sub** | | | RFC 4488 [36] | |
| refer-sub-value | "false" | | | |
| **Target-Dialog** | | | RFC 4538 [37] | |
| callid | px_MCPTT_session_B_ID | The session identity of the pre-established session | | |
| | px_MCVideo_session_B_ID | The session identity of the pre-established session | | MCVIDEO |
| | px_MCData_session_B_ID | The session identity of the pre-established session | | MCDATA |
| **Require** | | | RFC 3261 [22]<br>RFC 3312 [56]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| option-tag | "multiple-refer" | | | |
| **Proxy-Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Contact** | | | RFC 3261 [22<br>RFC 3840 [33] | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_ID) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| feature-param | "+g.3gpp.mcptt" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Push To Talk (MCPTT) communication. | | |
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | | MCVIDEO |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.11, A.2.2.4.11 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Data (MCData) communication. | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | This URN indicates that the device has the capabilities to support the mission critical push to talk (MCPTT) service. | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the mission critical video (MCVideo) service. | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | | MCDATA |
| feature-param | "audio" | This feature tag indicates that the device supports audio as a streaming media type. | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| **Refer-To** | | | RFC 3515 [38] | |
| addr-spec | a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 that points to an application/resource-lists+xml MIME body as specified in IETF RFC 5366 | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] | |
| access-net-specs | Access network technology and, if applicable, the cell ID | | | |
| **P-Preferred-Service** | | | RFC 6050 [31] | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata" | | | MCDATA |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.11, A.2.2.4.11 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Accept-Contact** | | | RFC 3841 [29] | |
| ac-value[1] | | | | |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| ac-value[2] | | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| req-param | "require" | | | |
| explicit-param | "explicit" | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | |
| MIME body part | | **SDP message** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/sdp" | | RFC 4566 [27] | |
| MIME-part-body | SDP Message as described in Table 5.5.3.1.1-1 | | | |
| | SDP Message as described in Table 5.5.3.1.1-2 | | | MCVIDEO |
| | SDP Message as described in Table 5.5.3.1.1-3 | | | MCDATA |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcptt-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |
| MIME body part | | **Resource list** | RFC 5366 [35] | PRIVATE-CALL |
| MIME-part-headers | | | | |
| Content-Type | "application/resource-lists+xml" | | | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.11, A.2.2.4.11 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.1-1 | | | |
| | Resource-lists as described in Table 5.5.3.3.1-2 | | | MCVIDEO |
| | Resource-lists as described in Table 5.5.3.3.1-3 | | | MCDATA |
| MIME body part | | **Location info** | | MCPTT OR MCVIDEO |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-location-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-location-info+xml" | | | MCVIDEO |
| MIME-part-body | Location-info as described in Table 5.5.3.4.1-1 | | TS 24.379 [9] clause F.3 | |
| | Location-info as described in Table 5.5.3.4.1-2 | | TS 24.281 [86] clause F.3 | MCVIDEO |

### 5.5.2.13 SIP REGISTER

This message is sent by the UE.

**Table 5.5.2.13-1: SIP REGISTER**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.12, A.2.2.4.12 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] | |
| Method | "REGISTER" | | | |
| Request-URI | "sip:" & px_MCPTT_User_A_Organization | SIP URI with home domain name as stored in the UICC | | |
| | "sip:" & px_MCVideo_User_A_Organization | SIP URI with home domain name as stored in the UICC | | MCVIDEO |
| | "sip:" & px_MCData_User_A_Organization | SIP URI with home domain name as stored in the UICC | | MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Route** | Not present | | RFC 3261 [22] | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | UE uses UDP for registration | | UDP |
| | "SIP/2.0/TCP | UE uses TCP for registration | | TCP |
| sent-by | | | | |
| host | IP address or FQDN | | | |
| port | any value if present | | | SIP_REGISTER_INITIAL |
| | any value if present | | | TCP |
| | protected server port of the UE when using UDP | | | UDP |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |
| user-info and host | same value as in the initial REGISTER | | | |
| | px_MCPTT_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | SIP_REGISTER_INITIAL AND MCPTT |
| | px_MCVideo_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | SIP_REGISTER_INITIAL AND MCVideo |
| | px_MCData_Client_A_ID | Public user ID (IMPU) as stored in the UICC | | SIP_REGISTER_INITIAL AND MCData |
| port | not present | | | |
| tag | any value | | | |
| **To** | | | | |
| addr-spec | same value as in From-header | | | |
| tag | Not present | | | |
| **Contact** | | | RFC 3261 [22] | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN | | | |
| port | any value if present | | | SIP_REGISTER_INITIAL |
| | protected server port of the UE | | | |
| feature-param | "+g.3gpp.mcptt" | | | |

| | | | | |
|---|---|---|---|---|
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Data (MCData) communication. | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the mission critical video (MCVideo) service. | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| feature-param | “expires=600000” if present | | | |
| **Expires** | Present if no expires parameter in Contact header | | RFC 3261 [22] RFC 3903 [43] | |
| value | "600000" | | | |
| **Require** | | | RFC 3261 [22] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Supported** | | | RFC 3261 [22] RFC 6442 [62] RFC 4488 [36] | |
| option-tag | "path" | | | |
| option-tag | "timer" | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | any allowed value | | | SIP_REGISTER_INITIAL |

| | | | | |
|---|---|---|---|---|
| | value sent by the UE in previous REGISTER incremented by one | | | |
| method | "REGISTER" | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | any value | | | |
| **Security-Client** | | | RFC 7315 [52] | |
| mechanism-name | "ipsec-3gpp" | | | |
| algorithm | "hmac-sha-1-96" | | | |
| protocol | "esp" (if present) | | | |
| mode | "trans" (if present) | | | |
| encrypt-algorithm | "des-ede3-cbc" or "aes-cbc" | | | |
| spi-c | SPI number of the inbound SA at the protected client port | | | |
| spi-s | SPI number of the inbound SA at the protected server port | | | |
| port-c | protected client port | | | |
| port-s | protected server port | | | |
| **Security-Verify** | Not present | | RFC 3329 [53] | SIP_REGISTER_INITIAL |
| **Security-Verify** | | | RFC 3329 [53] | |
| sec-mechanism | same value as Security Server header sent by SS | | | |
| **Authorization** | | | RFC 2617 [72], RFC 3310 [96] | SIP_REGISTER_INITIAL |
| username | px_MCPTT_User_A_ID | private user id as stored in the UICC | | |
| | px_MCVideo_User_A_ID | private user id as stored in the UICC | | MCVIDEO |
| | px_MCData_User_A_ID | private user id as stored in the UICC | | MCDATA |
| realm | px_MCPTT_User_A_Organization | home domain name as stored in the UICC (same as used in the request URI) | | |
| | px_MCVideo_User_A_Organization | home domain name as stored in the UICC (same as used in the request URI) | | MCVIDEO |
| | px_MCData_User_A_Organization | home domain name as stored in the UICC (same as used in the request URI) | | MCDATA |
| nonce | "" | Empty string | | |
| digest-uri | “sip:” & px_MCPTT_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | |
| | "sip:" & px_MCVideo_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | MCVIDEO |
| | "sip:" & px_MCData_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | MCDATA |
| opaque | any value if present | | | |
| qop | any value if present | | | |
| cnonce | any value if present | | | |
| nc | any value if present | | | |
| algorithm | any value if present | | | |

| | | | | |
|---|---|---|---|---|
| response | "" | Empty string | | |
| **Authorization** | | | RFC 2617 [72], RFC 3310 [96] | |
| username | px_MCPTT_User_A_ID | private user id as stored in the UICC | | |
| | px_MCVideo_User_A_ID | private user id as stored in the UICC | | MCVIDEO |
| | px_MCData_User_A_ID | private user id as stored in the UICC | | MCDATA |
| realm | same value as received in the realm directive in the WWW Authenticate header sent by SS | | | |
| nonce | same value as in WWW-Authenticate header sent by SS | | | |
| digest-uri | "sip:" & px_MCPTT_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | |
| | "sip:" & px_MCVideo_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | MCVIDEO |
| | "sip:" & px_MCData_User_A_Organization | SIP URI with home domain name as stored in the UICC (same as request URI) | | MCDATA |
| opaque | same value as sent by the server in “401 Unauthorized for REGISTER” | | | |
| qop | "auth" | | | |
| cnonce | any value | value assigned by UE affecting the response calculation | | |
| nc | nonce-count value | counter to indicate how many times the UE has sent the same value of nonce within successive REGISTERs, initial value shall be 1 | | |
| algorithm | “AKAv1-MD5” | | | |
| response | Digest response | calculated by the client according to RFC 2617 | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] | |
| access-net-specs | Access network technology and, if applicable, the cell ID | | | |
| **Content-Type** | | | RFC 5621 [58] | CONFIG |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of the message body | | |
| **Message-body** | | | RFC 3261 [22] | CONFIG |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |

| | | | | |
|---|---|---|---|---|
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |
| MIME body part | | **MIKEY** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | RFC 3830 [24] | |
| MIME-part-body | MIKEY message as described in Table 5.5.9.1-1 | MIKEY message, containing the CSK | TS 33.180 [94] | |

| Condition | Explanation |
|---|---|
| SIP_REGISTER_INITIAL | Initial unprotected REGISTER |
| For further conditions see table 5.5.1-1 | |

### 5.5.2.14 SIP SUBSCRIBE

This message is sent by the UE.

**Table 5.5.2.14-1: SIP SUBSCRIBE**

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.13, A.2.2.4.13 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "SUBSCRIBE" | | | |
| Request-URI | px_MCPTT_Server_A_URI | The public service identity identifying the originating participating MCPTT function serving the MCPTT user | | |
| | px_MCVideo_Server_A_URI | The public service identity identifying the originating participating MCVideo function serving the MCVideo user | | MCVIDEO |
| | px_MCData_Server_A_URI | The public service identity identifying the originating participating MCData function serving the MCData user | | MCDATA |
| | px_MCPTT_GMSURI | The configured public service identity for performing subscription proxy function of the GMS | TS 24.481 [11] subclause 6.3.13.2.1 | GROUPCONFIG AND MCPTT |
| | px_MCVideo_GMSURI | The configured public service identity for performing subscription proxy function of the GMS | TS 24.481 [11] subclause 6.3.13.2.1 | GROUPCONFIG AND MCVIDEO |
| | px_MCData_GMSURI | The configured public service identity for performing subscription proxy function of the GMS | TS 24.481 [11] subclause 6.3.13.2.1 | GROUPCONFIG AND MCDATA |
| SIP-Version | "SIP/2.0" | | | |
| **Route** | | | RFC 3261 [22] | |
| addr-spec[1] | SIP URI | | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery | | |
| port | protected server port of the SS | as assigned during registration | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | "scscf.3gpp.org" | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Via** | | | RFC 3261 [22] RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | UDP |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | | | | |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | value starting with 'z9hG4bK' | | | |
| **From** | | | RFC 3261 [22] | |
| addr-spec | | | | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.13, A.2.2.4.13 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| user-info and host | Public user ID (IMPU) as stored in the UICC | px_MCPTT_Client_A_ID | | |
| | Public user ID (IMPU) as stored in the UICC | px_MCVideo_Client_A_ID | | MCVIDEO |
| | Public user ID (IMPU) as stored in the UICC | px_MCData_Client_A_ID | | MCDATA |
| port | not present | | | |
| tag | any value | | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| port | not present | | | |
| tag | not present | | | |
| **Contact** | | | RFC 3261 [22] | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN | | | |
| port | protected server port of UE | as assigned during registration | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Video (MCVideo) communication. | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | This media feature tag when used in a SIP request or a SIP response indicates that the function sending the SIP message supports Mission Critical Data (MCData) communication. | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | This URN indicates that the device has the capabilities to support the mission critical video (MCVideo) service. | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | This URN indicates that the device has the capabilities to support the mission critical data (MCData) service. | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.13, A.2.2.4.13 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| **Expires** | | | RFC 3261 [22]<br>RFC 3903 [43] | |
| value | any value | | | |
| **Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22]<br>RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Cseq** | | | RFC 3261 [22] | |
| value | any allowed value | | | |
| method | "SUBSCRIBE" | | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | any allowed value | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52]<br>RFC 7913 [51] | |
| access-net-spec | Access network technology and, if applicable, the cell ID | Access network technology and, if applicable, the cell ID | | |
| **Event** | | | RFC 6665 [39] | |
| event-type | "presence" | | | |
| | "xcap-diff" | | | CONFIG<br>GROUPC<br>ONFIG |
| | "poc-settings" | | | MCDATA |
| **Accept** | | | RFC 3261 [22] | |
| media-range | "application/pidf+xml" | | | |
| **P-Preferred-Service** | | | RFC 6050 [31] | |
| Service-ID | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "urn:urn-7:3gpp-service.ims.icsi.mcdata" | | | MCDATA |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_User_A_ID | | | |
| | px_MCVideo_User_A_ID | | | MCVIDEO |
| | px_MCData_User_A_ID | | | MCDATA |
| port | not present | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.13, A.2.2.4.13 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |
| MIME body part | | **SIMPLE-FILTER** | | |
| MIME-part-headers | | | | |
| Content-Type | "application/simple-filter+xml" | | | |
| MIME-part-body | SIMPLE-FILTER as described in Table 5.5.3.6-1 | | TS 24.379 [9] subclause 9.3.2 | |
| | SIMPLE-FILTER as described in Table 5.5.3.6-2 | | TS 24.281 [86] subclause 8.3.2 | MCVIDEO |
| | SIMPLE-FILTER as described in Table 5.5.3.6-3 | | TS 24.282 [87] subclause 8.4.2 | MCDATA |
| MIME body part | | **Resource-lists** | | CONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/resource-lists+xml" | | | |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.1-1 | | | |
| | Resource-lists as described in Table 5.5.3.3.1-2 | | | MCVIDEO |
| | Resource-lists as described in Table 5.5.3.3.1-3 | | | MCDATA |
| MIME body part | | **MIKEY** | RFC 3830 [24] | CONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | | |
| MIME-part-body | MIKEY message as described in Table 5.5.9.1-1 | MIKEY message, containing the CSK | TS 33.180 [94] | |
| MIME body part | | **Resource-lists** | | GROUPCONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/resource-lists+xml" | | | |
| MIME-part-body | Resource-lists as described in Table 5.5.3.3.1-1 | | | |
| | Resource-lists as described in Table 5.5.3.3.1-2 | | | MCVIDEO |
| | Resource-lists as described in Table 5.5.3.3.1-3 | | | MCDATA |

| Derivation Path: TS 24.229 [16] subclause A.2.1.4.13, A.2.2.4.13 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME body part | | MIKEY | RFC 3830 [24] | GROUPCONFIG |
| MIME-part-headers | | | | |
| Content-Type | "application/mikey" | | | |
| MIME-part-body | MIKEY message as described in Table 5.5.9.1-1 | MIKEY message, containing the CSK | TS 33.180 [94] | |

### 5.5.2.15 SIP UPDATE

#### 5.5.2.15.1 SIP UPDATE from the UE

**Table 5.5.2.15.1-1: SIP UPDATE from the UE**

| Derivation Path: TS 24.229 [16] A.2.1.4.14, A.2.2.4.14 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22]<br>RFC 5031 [54] | |
| Method | "UPDATE" | | | |
| Request-URI | The same URI value as the recipient of UPDATE has earlier sent in its Contact header within the same dialog | | | |
| SIP-Version | 'SIP/2.0" | | | |
| **Via** | | | RFC 3261 [22]<br>RFC 3581 [55] | |
| sent-protocol | "SIP/2.0/UDP" | | | |
| | "SIP/2.0/TCP" | | | TCP |
| sent-by | same value as in INVITE message | | | MO_CALL |
| sent-by | | | | MT_CALL |
| host | IP address or FQDN | Either the UE's IP address or its home domain name | | |
| port | protected server port of the UE | as assigned during registration | | |
| via-branch | Value starting with 'z9hG4bK' | | | |
| **Route** | | | RFC 3261 [22] | |
| route-param list | URIs of the Record-Route header sent to the UE in the response which has established the dialog, in reverse order | | | MO_CALL |
| | URIs of the Record-Route header sent to the UE in the INVITE | | | MT_CALL |
| **From** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog ID (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22]<br>RFC 5031 [54] | |
| addr-spec | Same URI of the SS as used earlier in the dialog | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog ID (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Same value as used in the INVITE initiating the dialog | | | |
| **Contact** | | | RFC 3261 [22] | |
| addr-spec | same as in the INVITE creating the dialog | | | MO_CALL |
| addr-spec | same as in the response for the INVITE creating the dialog | | | MT_CALL |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |

| | | | | |
|---|---|---|---|---|
| feature-param | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "isfocus" | | | |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |
| feature-param | "video" | | | MCVIDEO |
| feature-param | "text" | | | MCDATA |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the UE within its previous request in the same dialog but increased by one | | | |
| method | "UPDATE" | | | |
| **Require** | | | RFC 3261 [22] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Proxy-Require** | | | RFC 3261 [22] RFC 3329 [53] | |
| option-tag | "sec-agree" | | | |
| **Security-Verify** | | | RFC 3329 [53] | |
| sec-mechanism | same value as Security -Server header sent by SS during registration | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | any allowed value | Non-zero value | | |
| **P-Access-Network-Info** | | | RFC 7315 [52] RFC 7913 [51] | |
| access-net-spec | Access network technology and, if applicable, the cell ID | | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "application/sdp" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | |
| SDP Message | As described in Table 5.5.3.1.1-1 | | | |
| | As described in Table 5.5.3.1.1-2 | | | MCVIDEO |
| | As described in Table 5.5.3.1.1-3 | | | MCDATA |

5.5.2.15.2 SIP UPDATE from the SS

**Table 5.5.2.15.2-1: SIP UPDATE from the SS**

| Derivation Path: TS 24.229 [16] A.2.1.4.14, A.2.2.4.14 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | RFC 3261 [22] RFC 5031 [54] | |
| Method | "UPDATE" | | | |
| Request-URI | same URI as the UE has sent earlier in the Contact header of a response within the same dialog | Contact URI of the UE ("callee") | | |
| SIP-Version | 'SIP/2.0" | | | |
| **Via** | same as specified for INVITE sent by the SS in Table 5.5.2.5.2-1 | | RFC 3261 [22] RFC 3581 [55] | MO_CALL |
| **Via** | same as in INVITE but with updated via-branches | | RFC 3261 [22] RFC 3581 [55] | MT_CALL |
| **From** | | | RFC 3261 [22] | |
| addr-spec | Same URI of the SS as used earlier in the dialog | Remote URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the SS as used earlier in the dialog | Remote tag of the dialog (from the UE's point of view) | | |
| **To** | | | RFC 3261 [22] RFC 5031 [54] | |
| addr-spec | Same URI of the UE as used earlier in the dialog | Local URI of the dialog (from the UE's point of view) | | |
| tag | Same tag of the UE as used earlier in the dialog | Local tag of the dialog (from the UE's point of view) | | |
| **Call-ID** | | | RFC 3261 [22] | |
| callid | Same value as used in the INVITE initiating the dialog | | | |
| **Contact** | | | RFC 3261 [22] | |
| addr-spec | same as in the response for the INVITE creating the dialog | | | MO_CALL |
| addr-spec | same as in the INVITE creating the dialog | | | MT_CALL |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "isfocus" | | | |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |

| | | | | |
|---|---|---|---|---|
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| **CSeq** | | | RFC 3261 [22] | |
| value | value of CSeq sent by the endpoint within its previous request in the same dialog but increased by one | | | |
| method | "UPDATE" | | | |
| **Max-Forwards** | | | RFC 3261 [22] | |
| value | "70" | The recommended initial value is 70 in RFC 3261 [22]. | | |
| **Content-Type** | | | RFC 5621 [58] | |
| media-type | "application/sdp" | | | |
| **Content-Length** | length of message-body | | RFC 3261 [22] | |
| value | length of message-body | | | |
| **Message-body** | | | RFC 3261 [22] | |
| SDP Message | As described in Table 5.5.3.1.1-2 | | | |
| | As described in Table 5.5.3.1.2-2 | | | MCVIDEO |
| | As described in Table 5.5.3.1.2-3 | | | MCDATA |

### 5.5.2.16 SIP 1xx

#### 5.5.2.16.1 SIP 100 (Trying)

This message is sent by the UE or the SS.

**Table 5.5.2.16.1-1: SIP 100 (Trying)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "100" | | | |
| Reason-Phrase | "Trying" | | | |
| **Via** | | | | |
| via-parm | same value as received in INVITE message | | | |
| **From** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in INVITE message | | | |
| **To** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| **Call-ID** | | | | |
| callid | same value as received in INVITE message | | | |
| **CSeq** | | | | |
| value | same value as received in INVITE message | | | |
| **Content-Length** | Optional in case of the message being sent by the UE | | | |
| value | "0" | No message body included - end of SIP message | | |

#### 5.5.2.16.2 SIP 180 (Ringing)

##### 5.5.2.16.2.1 SIP 180 (Ringing) from the UE

**Table 5.5.2.16.2.1-1: SIP 180 (Ringing) from the UE**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "180" | | | |
| Reason-Phrase | "Ringing" | | | |
| **Record-Route** | | | RFC 3261 [22] | |
| rec-route | same as received in INVITE message | | | |
| **Via** | same as received in INVITE message | | RFC 3261 [22]<br>RFC 3581 [55] | |
| **Require** | | | | 100rel |
| option-tag | "100rel" | | | |
| **From** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in INVITE message | | | |
| **To** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in the INVITE message or any value if missing in the INVITE message. | | | |
| **Contact** | | | | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_ID) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| port | protected server port of UE | as assigned during registration | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVideo |
| feature-param | "video" | | | MCVIDEO |
| feature-param | "text" | | | MCDATA |
| feature-param | "isfocus" | | | |
| **Supported** | | | | |
| option-tag | "norefersub" | | | |
| **Rseq** | | | RFC 3262 [97] | 100rel |
| response-num | previous RSeq number sent in the same direction incremented by one | | | |
| **Call-ID** | | | | |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| callid | same value as received in INVITE message | | | |
| **CSeq** | | | | |
| value | same value as received in INVITE message | | | |
| **Content-Length** | if present | | | |
| value | "0" | No message body included | | |

| Condition | Explanation |
|---|---|
| 100rel | Reponse sent reliable according to RFC 3262 [97] |

5.5.2.16.2.2 SIP 180 (Ringing) from the SS

**Table 5.5.2.16.2.2-1: SIP 180 (Ringing) from the SS**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "180" | | | |
| Reason-Phrase | "Ringing" | | | |
| **Record-Route** | same as spefied for the SIP 200 (OK) from the SS in table 5.5.2.17.1.2-1 with condition INVITE-RSP | | RFC 3261 [22] | |
| **Via** | same as received in the INVITE message | | RFC 3261 [22] RFC 3581 [55] | |
| **Require** | | | | 100rel |
| option-tag | "100rel" | | | |
| **From** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request | | | |
| **To** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request or To-tag assigned by the SS if missing in the request | | | |
| **Contact** | | | | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_B_ID | Callee contact Uri | | |
| | px_MCVideo_Client_B_ID | Callee contact Uri | | MCVIDEO |
| | px_MCData_Client_B_ID | Callee contact Uri | | MCDATA |
| port | not present | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| feature-param | "isfocus" | | | |
| **Supported** | | | | |
| option-tag | "norefersub" | | | |
| **Rseq** | | | RFC 3262 [97] | 100rel |
| response-num | previous RSeq number sent in the same direction incremented by one; arbitrarily selected if there is no previous RSeq number | | | |
| **Call-ID** | | | | |
| callid | same value as received in INVITE message | | | |
| **CSeq** | | | | |
| value | same value as received in INVITE message | | | |
| **Content-Length** | | | | |
| value | "0" | No message body included | | |

| Condition | Explanation |
|---|---|
| 100rel | Reponse sent reliable according to RFC 3262 [97] |

#### 5.5.2.16.3 SIP 183 (Session Progress)

##### 5.5.2.16.3.1 SIP 183 (Session Progress) from the UE

**Table 5.5.2.16.3.1-1: SIP 183 (Session Progress) from the UE**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "183" | | | |
| Reason-Phrase | "Session progress" | | | |
| **Record-Route** | | | RFC 3261 [22] | |
| rec-route | same as received in INVITE message | | | |
| **Via** | same as received in INVITE message | | RFC 3261 [22]<br>RFC 3581 [55] | |
| **Require** | | | | 100rel |
| option-tag | "100rel" | | | |
| **From** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in INVITE message | | | |
| **To** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in the INVITE message or any value if missing in the INVITE message. | | | |
| **Contact** | | | | |
| addr-spec | SIP URI | | | |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_ID) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| port | protected server port of UE | as assigned during registration | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVideo |
| feature-param | "video" | | | MCVIDEO |
| feature-param | "text" | | | MCDATA |
| feature-param | "isfocus" | | | |
| **Supported** | | | | |
| option-tag | "norefersub" | | | |
| **Rseq** | | | | 100rel |
| response-num | previous RSeq number sent in the same direction incremented by one | | | |
| **Call-ID** | | | | |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| callid | same value as received in INVITE message | | | |
| **CSeq** | | | | |
| value | same value as received in INVITE message | | | |
| **P-Answer-State** | if present | | | |
| value | "unconfirmed" | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_User_A_ID | | | |
| | px_MCVideo_User_A_ID | | | MCVIDEO |
| | px_MCData_User_A_ID | | | MCDATA |
| port | not present | | | |
| **Content-Length** | if present | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

| Condition | Explanation |
|---|---|
| 100rel | Reponse sent reliable according to RFC 3262 [97] |

5.5.2.16.3.2 SIP 183 (Session Progress) from the SS

**Table 5.5.2.16.3.2-1: SIP 183 (Session Progress) from the SS**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "183" | | | |
| Reason-Phrase | "Session progress" | | | |
| **Record-Route** | same as spefied for the SIP 200 (OK) from the SS in table 5.5.2.17.1.2-1 with condition INVITE-RSP | | RFC 3261 [22] | |
| **Via** | same as received in the INVITE message | | RFC 3261 [22] RFC 3581 [55] | |
| **Require** | | | | 100rel |
| option-tag | "100rel" | | | |
| **From** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request | | | |
| **To** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request or To-tag assigned by the SS if missing in the request | | | |
| **Contact** | | | | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_B_ID | Callee contact Uri | | |
| | px_MCVideo_Client_B_ID | Callee contact Uri | | MCVIDEO |
| | px_MCData_Client_B_ID | Callee contact Uri | | MCDATA |
| port | not present | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn-7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVIDEO |
| feature-param | "video" | This feature tag indicates that the device supports video as a streaming media type. | | MCVIDEO |
| feature-param | "text" | This feature tag indicates that the device supports text as a streaming media type. | | MCDATA |
| feature-param | "isfocus" | | | |
| **Supported** | | | | |
| option-tag | "norefersub" | | | |
| **Rseq** | | | | 100rel |

| | | | | |
|---|---|---|---|---|
| response-num | previous RSeq number sent in the same direction incremented by one; arbitrarily selected if there is no previous RSeq number | | | |
| **Call-ID** | | | | |
| callid | same value as received in INVITE message | | | |
| **CSeq** | | | | |
| value | same value as received in INVITE message | | | |
| **P-Answer-State** | | | | |
| value | "unconfirmed" | | | |
| **P-Asserted-Identity** | | | RFC 3325 [32] | |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| port | not present | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included | | |

| Condition | Explanation |
|---|---|
| 100rel | Reponse sent reliable according to RFC 3262 [97] |

### 5.5.2.17 SIP 2xx

#### 5.5.2.17.1 SIP 200 (OK)

##### 5.5.2.17.1.1 SIP 200 (OK) from the UE

**Table 5.5.2.17.1.1-1: SIP 200 (OK) from the UE**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "200" | | | |
| Reason-Phrase | "OK" | | | |
| **Via** | same as received in the request | | RFC 3261 [22] RFC 3581 [55] | |
| **Record-Route** | | | RFC 3261 [22] | INVITE-RSP |
| rec-route | same as received in the request | | | |
| **From** | | | | |
| addr-spec | Same value as received in the request | | | |
| tag | same value as received in the request | | | |
| **To** | | | | |
| addr-spec | same value as received in the request | | | |
| tag | same value as received in the request or any value if missing in the request. | | | |
| **Contact** | | | | INVITE-RSP |
| user-info and host | IP address or FQDN (px_MCPTT_Client_A_URI) | | | |
| | IP address or FQDN (px_MCVideo_Client_A_ID) | | | MCVIDEO |
| | IP address or FQDN (px_MCData_Client_A_ID) | | | MCDATA |
| port | protected server port of UE | as assigned during registration | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| feature-param | "+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcptt" | | | |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" | | | MCDATA |
| feature-param | "audio" | | | MCPTT OR MCVideo |
| feature-param | "video" | | | MCVIDEO |
| feature-param | "text" | | | MCDATA |
| feature-param | "isfocus" | | | |
| **Call-ID** | | | | |
| callid | same value as received in the request | | | |
| **CSeq** | | | | |
| value | same value as received in the request | | | |
| **Require** | | | | INVITE-RSP |
| option-tag | "timer" | | | |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session-Expires** | | | | INVITE-RSP |
| delta-seconds | "3600" | | | |
| refresher | "uac" | | | |
| **Supported** | | | | INVITE-RSP |
| option-tag | "tdialog" | | | |
| option-tag | "norefersub" | | | |
| option-tag | "explicitsub" | | | |
| option-tag | "nosub" | | | |
| **Content-Type** | | | RFC 5621 [58] | INVITE-RSP |
| value | "multipart/mixed" | | | |
| **Content-Length** | present in case of TCP and when there is a message body (otherwise optional) | | RFC 3261 [22] | |
| value | any value | length of message-body | | |
| **Message-body** | | | RFC 3261 [22] | INVITE-RSP |
| MIME body part | | **SDP message** | | |
| MIME-part-header | | | | |
| MIME-Content-Type | "application/sdp" | | RFC 4566 [27] | |
| MIME-part-body | SDP message as described in Table 5.5.3.1.1-1 | | | |
| | SDP message as described in Table 5.5.3.1.1-2 | | | MCVIDEO |
| | SDP message as described in Table 5.5.3.1.1-3 | FFS | | MCDATA |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-header | | | | |
| MIME-Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described in Table 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described in Table 5.5.3.2.1-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCData-Info as described in Table 5.5.3.2.1-3 | | TS 24.282 [87] clause D.1 | MCDATA |

| Condition | Explanation |
|---|---|
| INVITE-RSP | 200 OK is the response to the SIP INVITE |

5.5.2.17.1.2 SIP 200 (OK) from the SS

**Table 5.5.2.17.1.2-1: SIP 200 (OK) from the SS**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "200" | | | |
| Reason-Phrase | "OK" | | | |
| **Via** | same as received in the request | | RFC 3261 [22] RFC 3581 [55] | |
| **Record-Route** | | | RFC 3261 [22] | INVITE-RSP |
| addr-spec[1] | SIP URI | | | |
| user-info and host | pcscf.other.com | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| addr-spec[2] | SIP URI | | | |
| user-info and host | scscf.other.com | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| addr-spec[3] | SIP URI | | | |
| user-info and host | orig@scscf.3gpp.org | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| addr-spec[4] | SIP URI | | | |
| user-info and host | same address as sent by the UE in the first entry of the Route header of the INVITE | P-CSCF address | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Record-Route** | | | RFC 3261 [22] | SUBSCRIBE-RSP |
| addr-spec[1] | SIP URI | | | |
| user-info and host | P-CSCF address of the SS | P-CSCF address as assigned to the UE via NAS signalling or P-CSCF discovery (px_MCPTT_PCSCF_A_URI) | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **From** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request | | | |
| **To** | | | | |
| addr-spec | same value as in the request | | | |
| tag | same value as in the request or To-tag assigned by the SS if missing in the request | | | |
| **Expires** | | | RFC 3261 [22] RFC 3903 [43] | SUBSCRIBE-RSP, PUBLISH-RSP |
| value | same value as in the request | | | |
| **Contact** | | | | REGISTER-RSP |
| addr-spec | same value as received in the REGISTER | | | |
| feature-param | "+g.3gpp.mcptt" | | | |
| | "+g.3gpp.mcvideo" | | | MCVIDEO |
| | "+g.3gpp.mcdata.sds" | | | MCDATA |
| expires | "600000" | | | |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Contact** | | | | SUBSCRIBE-RSP, PUBLISH-RSP |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Server_A_URI | | | |
| | px_MCVideo_Server_A_URI | | | MCVIDEO |
| | px_MCData_Server_A_URI | | | MCDATA |
| port | not present | | | |
| Contact | | | | INVITE-RSP |
| addr-spec | | | | |
| user-info and host | px_MCPTT_Client_B_ID | | | |
| | px_MCVideo_Client_B_ID | | | MCVIDEO |
| | px_MCData_Client_B_ID | | | MCDATA |
| port | not present | | | |
| feature-param | “audio” | | | MCPTT OR MCVIDEO |
| feature-param | “video” | | | MCVIDEO |
| feature-param | “text” | | | MCDATA |
| **Call-ID** | | | | |
| callid | same value as received in the request | | | |
| **CSeq** | | | | |
| value | same value as received in the request | | | |
| **Require** | | | | INVITE-RSP |
| option-tag | "timer" | | | |
| **Session-Expires** | | | | INVITE-RSP |
| generic-param | "3600" | | | |
| refresher | "uac" | | | |
| **Supported** | | | | INVITE-RSP |
| option-tag | "tdialog" | | | |
| option-tag | "norefersub" | | | |
| option-tag | "explicitsub" | | | |
| option-tag | "nosub" | | | |
| **Service-Route** | | | RFC 3261 [22] | REGISTER-RSP |
| addr-spec[1] | SIP URI | | | |
| host | scscf.3gpp.org | | | |
| port | not present | | | |
| uri-parameters | "lr" | | | |
| **Content-Type** | | | RFC 5621 [58] | INVITE-RSP |
| media-type | "multipart/mixed" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | length of message-body | | | |
| **Message-body** | | | RFC 3261 [22] | INVITE-RSP |
| MIME body part | | **SDP message** | | |
| MIME-part-header | | | | |
| Content-Type | "application/sdp" | | RFC 4566 [27] | |

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MIME-part-body | SDP message as described in Table 5.5.3.1.2-1 | | | |
| | SDP message as described in Table 5.5.3.1.2-2 | | | MCVIDEO |
| | SDP message as described in Table 5.5.3.1.2-3 | FFS | | MCDATA |
| MIME body part | | **MCPTT/MCVideo/MCData Info** | | |
| MIME-part-header | | | | |
| Content-Type | "application/vnd.3gpp.mcptt-info+xml" | | | |
| | "application/vnd.3gpp.mcvideo-info+xml" | | | MCVIDEO |
| | "application/vnd.3gpp.mcdata-info+xml" | | | MCDATA |
| MIME-part-body | MCPTT-Info as described inTable 5.5.3.2.1-1 | | TS 24.379 [9] clause F.1 | |
| | MCVideo-Info as described inTable 5.5.3.2.2-2 | | TS 24.281 [86] clause F.1 | MCVIDEO |
| | MCVideo-Info as described inTable 5.5.3.2.2-3 | | TS 24.282 [87], clause D.1 | MCDATA |

| Condition | Explanation |
|---|---|
| REGISTER-RSP | 200 OK is the response to a SIP REGISTER |
| INVITE-RSP | 200 OK is the response to a SIP INVITE |
| SUBSCRIBE-RSP | 200 OK is the response to a SIP SUBSCRIBE |
| PUBLISH-RSP | 200 OK is the response to a SIP PUBLISH |

### 5.5.2.18 SIP 3xx

#### 5.5.2.18.1 SIP 302 (Moved Temporarily)

**Table 5.5.2.18.1-1: SIP 302 (Moved Temporarily)**

| Delivery Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "302" | | | |
| Reason-Phrase | "Moved Temporarily" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.18.1-1 needs to be reviewed

### 5.5.2.19 SIP 4xx

#### 5.5.2.19.1 SIP 403 (Forbidden)

**Table 5.5.2.19.1-1: SIP 403 (Forbidden)**

| Delivery Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "403" | | | |
| Reason-Phrase | "Forbidden" | | | |
| **Warning** | | | | |
| mcptt-warn-code | "100" | | | |
| mcptt-warn-text | "function not allowed due to" <detailed reason> | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.19.1-1 needs to be reviewed

#### 5.5.2.19.2 SIP 404 (Not Found)

**Table 5.5.2.19.2-1: SIP 404 (Not Found)**

| Delivery Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "404" | | | |
| Reason-Phrase | "Not Found" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.19.2-1 needs to be reviewed

#### 5.5.2.19.3 SIP 423 (Interval Too Brief)

**Table 5.5.2.19.3-1: SIP 423 (Interval Too Brief)**

| Delivery Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "423" | | | |
| Reason-Phrase | "Internal Too Brief" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.19.3-1 needs to be reviewed

### 5.5.2.19.4 SIP 480 (Temporarily unavailable)

This message is sent by the UE.

**Table 5.5.2.19.4-1: SIP 480 (Temporarily unavailable)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "480" | | | |
| Reason-Phrase | "Temporarily Unavailable" | | | |
| **Via** | same as received in request message | | RFC 3261 [22] RFC 3581 [55] | |
| **From** | | | | |
| addr-spec | same value as received in INVITE message | | | |
| tag | same value as received in request message | | | |
| **To** | | | | |
| addr-spec | same value as received in request message | | | |
| tag | same value as received in the INVITE or any value if missing in the INVITE. | | | |
| **Warning** | | | | |
| warn-code | "110" | | | |
| warn-text | "user declined the call invitation" | | | |
| **Call-ID** | same value as received in request message | | | |
| **CSeq** | same value as received in request message | | | |
| **Content Length** | if present | | | |
| value | "0" | No message body included | | |

### 5.5.2.19.5 SIP 486 (Busy Here)

**Table 5.5.2.19.5-1: SIP 486 (Busy Here)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "486" | | | |
| Reason-Phrase | "Busy Here" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.18.5-1 needs to be reviewed

### 5.5.2.19.6 SIP 488 (Not Acceptable Here)

**Table 5.5.2.19.6-1: SIP 488 (Not Acceptable Here)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "488" | | | |
| Reason-Phrase | "Not Acceptable Here" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor's note: Table 5.5.2.19.6-1 needs to be reviewed

5.5.2.19.7 SIP 401 (Unauthorized)

**Table 5.5.2.19.7-1: SIP 401 (Unauthorized)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | RFC 3261 [22] | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "401" | | | |
| Reason-Phrase | "Unauthorized" | | | |
| **Via** | Same value as received in the REGISTER message | | RFC 3261 [22] | |
| **To** | | | RFC 3261 [22] | |
| addr-spec | Same value as received in the REGISTER message | | | |
| tag | To-tag assigned by the SS | | | |
| **From** | Same value as received in the REGISTER message | | RFC 3261 [22] | |
| **Call-ID** | Same value as received in the REGISTER message | | RFC 3261 [22] | |
| **CSeq** | Same value as received in the REGISTER message | | RFC 3261 [22] | |
| **WWW-Authenticate** | | | RFC 2617 [72] RFC 3310 [96] | |
| realm | px_MCPTT_User_A_Organization | | | |
| algorithm | "AKAv1-MD5" | | | |
| qop-value | "auth" | | | |
| nonce | Base 64 encoding of RAND and AUTN | | | |
| opaque | arbitrary value (to be returned by the UE in subsequent REGISTER) | | | |
| **Security-Server** | | | RFC 3329 [50] | |
| mechanism-name | "ipsec-3gpp" | | | |
| algorithm[1] | px_IpSecAlgorithm (hmac-md5-96 or hmac-sha-1-96) | | | |
| spi-c[1] | SPI number of the inbound SA at the protected client port | | | |
| spi-s[1] | SPI number of the inbound SA at the protected server port | | | |
| port-c[1] | protected client port of SS | | | |
| port-s[1] | protected server port of SS | | | |
| Encrypt-algorithm[1] | des-ede3-cbc or aes-cbc | | | |
| q[1] | "0.9" | | | |
| mechanism-name[2] | "Ipsec-3gpp" | | | |
| algorithm[2] | Algorithm not selected by px_IpSecAlgorithm (hmac-sha-1-96 or hmac-md5-96) | | | |
| spi-c[2] | SPI number of the inbound SA at the protected client port | | | |
| spi-s[2] | SPI number of the inbound SA at the protected server port | | | |
| port-c[2] | protected client port of SS | | | |

| | | | | |
|---|---|---|---|---|
| port-s[2] | protected server port of SS | | | |
| encrypt-algorithm[2] | des-ede3-cbc or aes-cbc | | | |
| q[2] | "0.7" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| **value** | “0” | | | |

### 5.5.2.20 SIP 5xx

#### 5.5.2.20.1 SIP 500 (Server Internal Error)

**Table 5.5.2.20.1-1: SIP 500 (Server Internal Error)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "500" | | | |
| Reason-Phrase | "Server Internal Error" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor’s note: Table 5.5.2.20.1-1 needs to be reviewed

### 5.5.2.21 SIP 6xx

#### 5.5.2.21.1 SIP 606 (Not Acceptable)

**Table 5.5.2.21.1-1: SIP 606 (Not Acceptable)**

| Derivation Path: RFC 3261 [22] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| SIP-Version | "SIP/2.0" | | | |
| Status-Code | "606" | | | |
| Reason-Phrase | "Not Acceptable" | | | |
| **Content-Length** | | | RFC 3261 [22] | |
| value | "0" | No message body included - end of SIP message | | |

Editor’s note: Table 5.5.2.21.1-1 needs to be reviewed

## 5.5.3 Default SDP message and other information elements

### 5.5.3.1 SDP Message

#### 5.5.3.1.1 SDP Message from the UE

- MCPTT

**Table 5.5.3.1.1-1: SDP Message from the UE for MCPTT**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | px_MCPTT_User_A_ID | Username of client | | |
| sess-id | any allowed value | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | any allowed value | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| unicast-address | px_MCPTT_IP_ConnectionAddressAll | | | |
| **Session Name** | at least one UTF-8-encoded character, or if no name is given, a single empty space | s= line | | |
| **Connection Data** | not required if included in all media | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCPTT_IP_ConnectionAddressAll | | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | TS 26.114 [64] Table K.6 | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | RFC 4867 [59] | |
| media | "audio" | | | |
| port | any allowed value | The transport port to which the media stream is sent | | |
| proto | "RTP/AVP" | | | |
| fmt | any allowed value(s) | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **Connection Data** | | c= line<br>Included if the media plane for audio uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCPTT_IP_ConnectionAddressAudio | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | the value given in fmt in the audio media description | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | RFC 4867 [59] subclause 8.2 | |
| max-red | "0" | No redundancy will be used | RFC 4867 [59] subclause 8.2 | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | any allowed value | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | any allowed value | maximum packet time | | |
| **media description** | | m= line<br>media = application<br><br>SDP media-level section for a media-floor control entity | | |
| media | "application" | | | |
| port | any allowed value | The port for the media-floor control entity | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCPTT_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCPTT" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255 | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_granted | present | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_implicit_request | present | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| key-mgmt | | | TS 24.379 [9] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | RFC 4567 [44] | |

- MCVideo

**Table 5.5.3.1.1-2: SDP Message from the UE for MCVideo**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | px_ MCVideo _User_A_ID | Username of client | | |
| sess-id | any allowed value | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | any allowed value | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| unicast-address | px_MCVideo_IP_ConnectionAddressAll | | | |
| **Session Name** | at least one UTF-8-encoded character, or if no name is given, a single empty space | s= line | | |
| **Connection Data** | not required if included in all media | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCVideo_IP_ConnectionAddressAll | | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | TS 26.114 [64] Table K.6 | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | RFC 4867 [59] | |
| media | "audio" | | | |
| port | any allowed value | The transport port to which the media stream is sent | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| proto | "RTP/AVP" | | | |
| fmt | any allowed value(s) | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **Connection Data** | | c= line<br>Included if the media plane for audio uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCVideo_IP_ConnectionAddressAudio | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | the value given in fmt in the audio media description | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | RFC 4867 [59] subclause 8.2 | |
| max-red | "0" | No redundancy will be used | RFC 4867 [59] subclause 8.2 | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | any allowed value | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | any allowed value | maximum packet time | | |
| **media description** | | m= line<br>media = video<br><br>SDP media-level section for a media-transmission control entity | | |
| media | "video" | | | |
| port | any allowed value | The port for the media-transmission control entity | | |
| proto | "udp" | User Datagram Protocol. With UDP, computer applications can send messages to other hosts on an Internet Protocol (IP) network. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | to retransmission, which may not be an option in a real-time system. | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCVideo_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "" | | | |
| encoding name | "H.264" | | | |
| clock rate | | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "" if present | Channel number | | |
| **media attribute** | | a= line<br><br>attribute = fmtp | | |
| fmtp | | | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value.<br><br>Shall include the "mc_queueing" fmtp attribute in SDP offers when queueing of Transmission request is supported. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255<br><br>Shall include the "mc_priority" fmtp attribute when a transmission priority different than the default priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_reception_priority | not present<br>or<br>any allowed value | Any integer value in the range of 0…255<br><br>Shall include the "mc_reception_priority" fmtp attribute when a reception priority different than the default reception priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mc_granted | present | Parameter has no value<br><br>Shall include the "mc_granted" fmtp attribute in the SDP offer of an initial SIP INVITE request when it is acceptable for the MCVideo client to receive a granted indication in the SIP 200 (OK) response to an initial INVITE request. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | present | Parameter has no value<br><br>Shall include the "mc_implicit_request" fmtp attribute when a SIP request shall be interpreted as an implicit Transmission request. If not explicitly stated in procedures in the present document or in procedures in 3GPP TS 24.281 [2] that the "mc_implicit_request" fmtp attribute shall be included, the decision to include the "mc_implicit_request" fmtp attribute or not, is an implementation option. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | Key Management attribute field in the media and session level. | 3GPP TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 6.1.1.1.3.3-3 | MIKEY carries the security parameters needed for setting up the security protocol. It is a protocol designed for government and relevant enterprises to enable secure, cross-platform multimedia communications. | RFC 4567 [44] | |
| **media description** | | m= line<br>media = application<br><br>SDP media-level section for a media-floor control entity | | |
| media | "application" | | 3GPP TS 24.581 [88] clause 12 | |
| port | any allowed value | The port for the media-floor control entity | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| proto | "udp" | User Datagram Protocol. With UDP, computer applications can send messages to other hosts on an Internet Protocol (IP) network. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system. | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_ MCVideo _IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| format | " MCVideo " | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value.<br><br>Shall include the "mc_queueing" fmtp attribute in SDP offers when queueing of Transmission request is supported. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255<br><br>Shall include the "mc_priority" fmtp attribute when a transmission priority different than the default priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_reception_priority | not present<br>or<br>any allowed value | Any integer value in the range of 0…255<br><br>Shall include the "mc_reception_priority" fmtp attribute when a reception priority different than the | 3GPP TS 24.581 [88] clause 12, clause 14 | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | default reception priority is required. | | |
| mc_granted | present | Parameter has no value<br>Shall include the "mc_granted" fmtp attribute in the SDP offer of an initial SIP INVITE request when it is acceptable for the MCVideo client to receive a granted indication in the SIP 200 (OK) response to an initial INVITE request. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | present | Parameter has no value<br>Shall include the "mc_implicit_request" fmtp attribute when a SIP request shall be interpreted as an implicit Transmission request. If not explicitly stated in procedures in the present document or in procedures in 3GPP TS 24.281 [2] that the "mc_implicit_request" fmtp attribute shall be included, the decision to include the "mc_implicit_request" fmtp attribute or not, is an implementation option. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | | TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | RFC 4567 [44] | |

- MCData

**Table 5.5.3.1.1-3: SDP Message from the UE for MCData**

FFS

5.5.3.1.2 SDP Message from the SS

- MCPTT

**Table 5.5.3.1.2-1: SDP Message from the SS for MCPTT**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | px_MCPTT_User_B_ID | Username of client sending message | | |
| sess-id | "12345678" | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | "12345678" | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the unicast address of the UE | | |
| unicast-address | px_MCPTT_IP_ConnectionAddressAll | | | |
| **Session Name** | at least one UTF-8-encoded character, or if no name is given, a single empty space | s= line | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | "38" | kilobits per second; Maximum AMR-WB at 23.85 kbps but limit to 12.65 kbps plus overhead | TS 26.114 [64] Table K.6 | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | RFC 4867 [59] | |
| media | "audio" | | | |
| port | "49152" | The transport port to which the media stream is sent | RFC 6335 [63] subclause 6 | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | RTP/AVP payload type for AMR-WB is dynamic | | |
| **media title** | "speech" | i= line | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the connection address | | |
| connection-address | px_MCPTT_IP_ConnectionAddressAudio | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| format | "99" | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | RFC 4867 [59] subclause 8.2 | |
| max-red | "0" | No redundancy will be used | RFC 4867 [59] subclause 8.2 | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | "20" | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | "240" | maximum packet time | | |
| **media description** | | m= line<br>media = application<br><br>SDP media-level section for a media-floor control entity | | |
| media | "application" | | | |
| port | "49153" | The port for the media-floor control entity | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the connection address | | |
| connection-address | px_MCPTT_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCPTT" | | | |
| format specific parameters | | | | |
| mc_queueing | Present | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_priority | "5" | Any integer value in the range of 1..255 | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_granted | Present | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| mc_implicit_request | Present | Parameter has no value | TS 24.380 [10] cl. 12.1.2.3 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | | TS 24.379 [9] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | RFC 4567 [44] | |

- MCVideo

**Table 5.5.3.1.2-2: SDP Message from the SS for MCVideo**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Origin** | | o= line | | |
| username | px_MCVideo_User_B_ID | Username of client sending message | | |
| sess-id | "12345678" | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | "12345678" | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the unicast address of the UE | | |
| unicast-address | px_MCVideo_IP_ConnectionAddressAll | | | |
| **Session Name** | at least one UTF-8-encoded character, or if no name is given, a single empty space | s= line | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | "38" | kilobits per second; Maximum AMR-WB at 23.85 kbps but limit to 12.65 kbps plus overhead | TS 26.114 [64] Table K.6 | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | RFC 4867 [59] | |
| media | "audio" | | | |
| port | "49152" | The transport port to which the media stream is sent | RFC 6335 [63] subclause 6 | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | RTP/AVP payload type for AMR-WB is dynamic | | |
| **media title** | "speech" | i= line | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the connection address | | |
| connection-address | px_MCVideo_IP_ConnectionAddressAudio | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "99" | | | |
| format specific parameters | | Parameters of WB- | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | RFC 4867 [59] subclause 8.2 | |
| max-red | "0" | No redundancy will be used | RFC 4867 [59] subclause 8.2 | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | "20" | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | "240" | maximum packet time | | |
| **media description** | | m= line<br>media = video<br><br>SDP media-level section for a media-transmission control entity | | |
| media | "video" | | | |
| port | any allowed value | The port for the media-transmission control entity | | |
| proto | "udp" | User Datagram Protocol. With UDP, computer applications can send messages to other hosts on an Internet Protocol (IP) network. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system. | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCVideo_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "" | | | |
| encoding name | "H.264" | | | |
| clock rate | | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "" if present | Channel number | | |
| **media attribute** | | a= line<br><br>attribute = fmtp | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| fmtp | | | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value.<br><br>Shall include the "mc_queueing" fmtp attribute in SDP offers when queueing of Transmission request is supported. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255<br><br>Shall include the "mc_priority" fmtp attribute when a transmission priority different than the default priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_reception_priority | not present<br>or<br>any allowed value | Any integer value in the range of 0…255<br><br>Shall include the "mc_reception_priority" fmtp attribute when a reception priority different than the default reception priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_granted | present | Parameter has no value<br><br>Shall include the "mc_granted" fmtp attribute in the SDP offer of an initial SIP INVITE request when it is acceptable for the MCVideo client to receive a granted indication in the SIP 200 (OK) response to an initial INVITE request. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | present | Parameter has no value<br><br>Shall include the "mc_implicit_request" fmtp attribute when a SIP request shall be interpreted as an implicit Transmission request. If not explicitly stated in procedures in the present document or in procedures in 3GPP TS 24.281 [2] | 3GPP TS 24.581 [88] clause 12, clause 14 | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | that the "mc_implicit_request" fmtp attribute shall be included, the decision to include the "mc_implicit_request" fmtp attribute or not, is an implementation option. | | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | Key Management attribute field in the media and session level. | TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 6.1.1.1.3.3-3 | MIKEY carries the security parameters needed for setting up the security protocol. It is a protocol designed for government and relevant enterprises to enable secure, cross-platform multimedia communications. | RFC 4567 [44] | |
| **media description** | | m= line<br>media = application<br><br>SDP media-level section for a media-floor control entity | | |
| media | "application" | | | |
| port | "49153" | The port for the media-floor control entity | | |
| proto | "udp" | | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | This depends on the connection address | | |
| connection-address | px_MCVideo_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | Present | Parameter has no value | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | "5" | Any integer value in the range of 1..255 | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_granted | Present | Parameter has no value | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | Present | Parameter has no value | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| **media attribute** | | a= line | | PRIVATE- |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | attribute = key-mgmt | | CALL |
| key-mgmt | | | TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | RFC 4567 [44] | |

- MCData

**Table 5.5.3.1.2-3: SDP Message from the SS for MCData**

FFS

5.5.3.1.3 SDP Message from the UE - Off-network

- MCPTT

**Table 5.5.3.1.3-1: SDP Message from the UE - Off-network for MCPTT**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | "-" | | | |
| sess-id | any allowed value | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | any allowed value | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| unicast-address | px_MCPTT_IP_ConnectionAddressAll | | | |
| **Session Name** | "-" | s= line | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCPTT_IP_ConnectionAddressAll | Set to the multicast IP address of the MCPTT group | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | | |
| media | "audio" | | | |
| port | any allowed value | Set to a port number for MCPTT speech of the MCPTT group | | |
| proto | "RTP/AVP" | | | |
| fmt | any allowed value(s) | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | the value given in fmt in the audio media description | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | | |
| max-red | "0" | No redundancy will be used | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | any allowed value | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | any allowed value | maximum packet time | | |
| **media description** | | m= line<br>media = application | | |
| media | "application" | | | |
| port | any allowed value | Set to a port number for media-floor control entity of the MCPTT group | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCPTT" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value | | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255 | | |
| mc_granted | present | Parameter has no value | | |
| mc_implicit_request | present | Parameter has no value | | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | |
| key-mgmt | | | | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | | |

- MCVideo

**Table 5.5.3.1.3-2: SDP Message from the UE - Off-network for MCVideo**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | "-" | | | |
| sess-id | any allowed value | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | any allowed value | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| unicast-address | px_MCVideo_IP_ConnectionAddressAll | | | |
| **Session Name** | "-" | s= line | | |
| **Connection Data** | | c= line | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCVideo_IP_ConnectionAddressAll | Set to the multicast IP address of the MCVideo group | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | | |
| media | "audio" | | | |
| port | any allowed value | Set to a port number for MCVideo speech of the MCVideo group | | |
| proto | "RTP/AVP" | | | |
| fmt | any allowed value(s) | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | the value given in fmt in the audio media description | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | | |
| max-red | "0" | No redundancy will be used | | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | any allowed value | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | any allowed value | maximum packet time | | |
| **media description** | | m= line<br>media = video<br><br>SDP media-level section for a media-transmission control entity | | |
| media | "video" | | | |
| port | any allowed value | The port for the media-transmission control entity | | |
| proto | "udp" | User Datagram Protocol. With UDP, computer applications can send messages to | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | other hosts on an Internet Protocol (IP) network. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system. | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCVideo_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "" | | | |
| encoding name | "H.264" | | | |
| clock rate | | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "" if present | Channel number | | |
| **media attribute** | | a= line<br><br>attribute = fmtp | | |
| fmtp | | | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value.<br><br>Shall include the "mc_queueing" fmtp attribute in SDP offers when queueing of Transmission request is supported. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255<br><br>Shall include the "mc_priority" fmtp attribute when a transmission priority different than the default priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_reception_priority | not present<br>or | Any integer value in the range of 0…255 | 3GPP TS 24.581 [88] | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | any allowed value | Shall include the "mc_reception_priority" fmtp attribute when a reception priority different than the default reception priority is required. | clause 12, clause 14 | |
| mc_granted | present | Parameter has no value<br><br>Shall include the "mc_granted" fmtp attribute in the SDP offer of an initial SIP INVITE request when it is acceptable for the MCVideo client to receive a granted indication in the SIP 200 (OK) response to an initial INVITE request. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | present | Parameter has no value<br><br>Shall include the "mc_implicit_request" fmtp attribute when a SIP request shall be interpreted as an implicit Transmission request. If not explicitly stated in procedures in the present document or in procedures in 3GPP TS 24.281 [2] that the "mc_implicit_request" fmtp attribute shall be included, the decision to include the "mc_implicit_request" fmtp attribute or not, is an implementation option. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | Key Management attribute field in the media and session level. | TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 6.1.1.1.3.3-3 | MIKEY carries the security parameters needed for setting up the security protocol. It is a protocol designed for government and relevant enterprises to enable secure, cross-platform multimedia communications. | RFC 4567 [44] | |
| **media description** | | m= line<br>media = application | | |
| media | "application" | | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| port | any allowed value | Set to a port number for media-floor control entity of the MCVideo group | | |
| proto | "udp" | | | |
| fmt | "MCVideo" | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value | | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255 | | |
| mc_granted | present | Parameter has no value | | |
| mc_implicit_request | present | Parameter has no value | | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | |
| key-mgmt | | | | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | | |

- MCData

**Table 5.5.3.1.3-3: SDP Message from the UE - Off-network for MCData**

FFS

5.5.3.1.4 SDP Message from the SS - Off-network

- MCPTT

**Table 5.5.3.1.4-1: SDP Message from the SS - Off-network for MCPTT**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | "-" | | | |
| sess-id | "12345678" | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | "12345678" | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| unicast-address | px_MCPTT_IP_ConnectionAddressAll | | | |
| **Session Name** | "-" | s= line | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCPTT_IP_ConnectionAddressAll | Set to the multicast IP address of the MCPTT group | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | | |
| media | "audio" | | | |
| port | "49152" | Set to a port number for MCPTT speech of the MCPTT group | | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | "99" | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | | |
| max-red | "0" | No redundancy will be used | | |
| **media attribute** | | a= line<br>attribute =ptime | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| ptime | "20" | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | "240" | maximum packet time | | |
| **media description** | | m= line<br>media = application | | |
| media | "application" | | | |
| port | "49153" | Set to a port number for media-floor control entity of the MCPTT group | | |
| proto | "udp" | | | |
| fmt | "MCPTT" | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCPTT" | | | |
| format specific parameters | | | | |
| mc_queueing | Present | Parameter has no value | | |
| mc_priority | "5" | Any integer value in the range of 1..255 | | |
| mc_granted | Present | Parameter has no value | | |
| mc_implicit_request | Present | Parameter has no value | | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | |
| key-mgmt | | | | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | | |

- MCVideo

**Table 5.5.3.1.4-2: SDP Message from the SS - Off-network for MCVideo**

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Session description:** | | | | |
| **Protocol Version** | "0" | v= line | | |
| **Origin** | | o= line | | |
| username | "-" | | | |
| sess-id | "12345678" | A numeric string such that the tuple of <username>, <sess-id>, <nettype>, <addrtype>, and <unicast-address> forms a globally unique identifier for the session. | | |
| sess-version | "12345678" | | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| unicast-address | px_MCVideo_IP_ConnectionAddressAll | | | |
| **Session Name** | "-" | s= line | | |
| **Connection Data** | | c= line | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | "IP4" or "IP6" | | |
| connection-address | px_MCVideo_IP_Conn | Set to the multicast IP | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | ectionAddressAll | address of the MCVideo group | | |
| **Bandwidth** | | b= line | | |
| bwtype | "AS:" | bwtype:bandwidth | | |
| bandwidth | any allowed value | | | |
| **Time description** | | | | |
| **Timing** | | t= line | | |
| start-time | "0" | | | |
| stop-time | "0" | | | |
| **Media descriptions** | | | | |
| **media description** | | m= line<br>media = audio | | |
| media | "audio" | | | |
| port | "49152" | Set to a port number for MCVideo speech of the MCVideo group | | |
| proto | "RTP/AVP" | | | |
| fmt | "99" | Indicating RTP payload type numbers | | |
| **media title** | "speech" | i= line | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "99" | | | |
| encoding name | "AMR-WB" | | | |
| clock rate | 16000 | | | |
| encoding parameter | "1" if present | Channel number | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | "fmtp" | | | |
| format | "99" | | | |
| format specific parameters | | Parameters of WB-AMR codec | | |
| mode-change-capability | "2" | To be able to interoperate fully with gateways to circuit switched networks | | |
| max-red | "0" | No redundancy will be used | | |
| **media attribute** | | a= line<br>attribute =ptime | | |
| ptime | "20" | packet time | | |
| **media attribute** | | a= line<br>attribute =maxptime | | |
| maxptime | "240" | maximum packet time | | |
| **media description** | | m= line<br>media = video<br><br>SDP media-level section for a media-transmission control entity | | |
| media | "video" | | | |
| port | any allowed value | The port for the media-transmission control entity | | |
| proto | "udp" | User Datagram Protocol. With UDP, computer applications can send messages to other hosts on an Internet Protocol (IP) network. Time-sensitive applications often use UDP because | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system. | | |
| fmt | "MCVideo" | | | |
| **Connection Data** | | c= line<br>Included if the media plane control channel uses a different IP address than other media described in the SDP | | |
| nettype | "IN" | | | |
| addrtype | "IP4" | | | |
| connection-address | px_MCVideo_IP_ConnectionAddressApp | | | |
| **media attribute** | | a= line<br>attribute = rtpmap | | |
| rtpmap | "rtpmap" | | | |
| payload type | "" | | | |
| encoding name | "H.264" | | | |
| clock rate | | | RFC 4867 [59] subclause 8.3 | |
| encoding parameter | "" if present | Channel number | | |
| **media attribute** | | a= line<br><br>attribute = fmtp | | |
| fmtp | | | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | optional | Parameter has no value.<br><br>Shall include the "mc_queueing" fmtp attribute in SDP offers when queueing of Transmission request is supported. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_priority | not present<br>or<br>any allowed value | Any integer value in the range of 1..255<br><br>Shall include the "mc_priority" fmtp attribute when a transmission priority different than the default priority is required. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_reception_priority | not present<br>or<br>any allowed value | Any integer value in the range of 0…255<br><br>Shall include the "mc_reception_priority" fmtp attribute when a reception priority | 3GPP TS 24.581 [88] clause 12, clause 14 | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | different than the default reception priority is required. | | |
| mc_granted | present | Parameter has no value<br><br>Shall include the "mc_granted" fmtp attribute in the SDP offer of an initial SIP INVITE request when it is acceptable for the MCVideo client to receive a granted indication in the SIP 200 (OK) response to an initial INVITE request. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| mc_implicit_request | present | Parameter has no value<br><br>Shall include the "mc_implicit_request" fmtp attribute when a SIP request shall be interpreted as an implicit Transmission request. If not explicitly stated in procedures in the present document or in procedures in 3GPP TS 24.281 [2] that the "mc_implicit_request" fmtp attribute shall be included, the decision to include the "mc_implicit_request" fmtp attribute or not, is an implementation option. | 3GPP TS 24.581 [88] clause 12, clause 14 | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | PRIVATE-CALL |
| key-mgmt | | Key Management attribute field in the media and session level. | TS 24.281 [86] subclause 6.2.1 | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 6.1.1.1.3.3-3 | MIKEY carries the security parameters needed for setting up the security protocol. It is a protocol designed for government and relevant enterprises to enable secure, cross-platform multimedia communications. | RFC 4567 [44] | |
| **media description** | | m= line<br>media = application | | |
| media | "application" | | | |
| port | "49153" | Set to a port number for media-floor control entity of the MCVideo group | | |
| proto | "udp" | | | |

| Derivation Path: RFC 4566 [27] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| fmt | "MCVideo" | | | |
| **media attribute** | | a= line<br>attribute = fmtp | | |
| fmtp | | | | |
| format | "MCVideo" | | | |
| format specific parameters | | | | |
| mc_queueing | Present | Parameter has no value | | |
| mc_priority | "5" | Any integer value in the range of 1..255 | | |
| mc_granted | Present | Parameter has no value | | |
| mc_implicit_request | Present | Parameter has no value | | |
| **media attribute** | | a= line<br>attribute = key-mgmt | | |
| key-mgmt | | | | |
| mikey | MIKEY-SAKKE I_MESSAGE as specified in Table 5.5.9.1-2 | | | |

- MCData

**Table 5.5.3.1.4-3: SDP Message from the SS - Off-network for MCData**

FFS

### 5.5.3.2 MCS Info Lists

#### 5.5.3.2.1 MCS Info Lists from the UE

- MCPTT

**Table 5.5.3.2.1-1: MCPTT-Info from the UE**

| Derivation Path: TS 24.379 [9] subclause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-access-token | not present | | | |
| | Access token as assigned to the UE by Token Response | The access token is opaque to the MCPTT client | TS 33.180 [94], clause B.4<br>RFC 6749 [77] | CONFIG |
| session-type | not present | | | |
| | "prearranged" | | | GROUP-CALL |
| | "private" | | | PRIVATE-CALL |
| mcptt-request-uri | not present | | | |
| | px_MCPTT_Group_A_ID | The URI of the group | | GROUP-CALL |
| | px_MCPTT_Client_B_ID | The URI of the invited MCPTT Client | | PRIVATE-CALL |
| mcptt-calling-user-id | not present or px_MCPTT_User_A_ID | | | |
| | not present | | | CONFIG |
| mcptt-called-party-id | not present or px_MCPTT_User_B_ID | | | |
| | not present | | | CONFIG |
| mcptt-calling-group-id | not present | | | |
| required | not present | | | |
| emergency-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-CALL |
| alert-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-ALERT |
| imminentperil-ind | not present or if present then="false" | | | |
| | "true" | | | IMMPERIL-CALL |
| broadcast-ind | not present | | | |
| mc-org" | not present | | | |
| floor-state | not present | | | |
| associated-group-id | px_MCPTT_Group_A_ID if mcptt-request-uri contains a temporary group identity; otherwise, not present | if the <mcptt-request-uri> element contains a group identity then this element can include an MCPTT group ID associated with the group identity in the <mcptt-request-uri> element. E.g. if the <mcptt-request-uri> element contains a temporary group identity (TGI), then the <associated-group-id> element can contain the constituent MCPTT group ID | TS 24.379 [9] subclause F.1.3 | GROUP-CALL |
| | not present | | | PRIVATE-CALL |
| originated-by | not present | | | |
| MKFC-GKTPs | not present | | | |

| Derivation Path: TS 24.379 [9] subclause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcptt-client-id | px_MCPTT_Client_A_ID | The URI of the MCPTT Client | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| | ID token as assigned to the UE by Token Response | The MCPTT client may validate the user with the ID token and configure itself for the user | TS 33.180 [94], clause B.4 RFC 6749 [77] | CONFIG |
| alert-ind-rcvd | not present | | | |
| anyExt | not present or any allowed value | | TS 24.379 [9], subclause F.1.3 | |

- MCVideo

**Table 5.5.3.2.1-2: MCVideo-Info from the UE**

| Derivation Path: TS 24.281 [86] Clause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcvideoinfo | | | | |
| mcvideo-Params | | | | |
| mcvideo-access-token | not present | | | |
| | "eyJhbGciOiJSUzI1NiJ9.eyJtY3B0dF9pZCI6ImFsaWNlQG9yZy5jb20iLCJleHAiOjE0NTM1MDYxMjEsInNjb3BlIjpbIm9wZW5pZCIsIjNncHA6bWNwdHQ6cHR0X3NlcnZlciJdLCJjbGllbnRfaWQiOiJtY3B0dF9jbGllbnQifQ.XYIqai4YKSZCKRNMLipGC_5nV4BE79lJpvjexWjlqqcqiEx6AmHHIRo0mhcxeCESrXei9krom9e8Goxr_hgF3szvgbwl8JRbFuv97XgepDLjEq4jL3Cbu41Q9b0WdXAdFmeEbiB8wo_xggiGwv6IDR1b3TgAAsdjkRxSK4ctIKPaOJSRmM7MKMcKhlug3BEkSC9-aXBTSIv5fAGN-ShDbPvHycBpjzKWXBvMIR5PaCg-9fwjELXZXdRwz8C6JbRM8aqzhdt4CVhQ3-Arip-S9CKd0tu-qhHfF2rvJDRlg8ZBiihdPH8mJs-qpTFep_1-kON3mL0_g54xVmlMwN0XQA" | The access token is opaque to the MCVideo client | TS 33.180 [94], clause B.4 RFC 6749 [77] | CONFIG |
| session-type | "prearranged" | | | GROUP-CALL |
| | "private" | | | PRIVATE-CALL |

| | | | | |
|---|---|---|---|---|
| mcvideo-request-uri | px_MCVideo_Group_A_ID | The URI of the group | | GROUP-CALL |
| | px_MCVideo_Client_B_ID | The URI of the invited MCVideo Client | | PRIVATE-CALL |
| mcvideo-calling-user-id | not present or px_MCVideo_User_A_ID | | | |
| mcvideo-called-party-id | not present or px_MCVideo_User_B_ID | | | |
| mcvideo-calling-group-id | not present | | | |
| required | not present | | | |
| emergency-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-CALL |
| alert-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-ALERT |
| imminentperil-ind | not present or if present then="false" | | | |
| | "true" | | | IMMPERIL-CALL |
| broadcast-ind | not present | | | |
| mc-org" | not present | | | |
| transmission-state | not present | | | |
| associated-group-id | px_MCVideo_Group_A_ID if mcvideo-request-uri contains a temporary group identity; otherwise, not present | if the <mcvideo-request-uri> element contains a group identity then this element can include an MCVideo group ID associated with the group identity in the <mcvideo-request-uri> element. E.g. if the <mcvideo-request-uri> element contains a temporary group identity (TGI), then the <associated-group-id> element can contain the constituent MCVideo group ID | TS 24.281 [86] subclause F.1.3 | GROUP-CALL |
| | not present | | | PRIVATE-CALL |
| originated-by | not present | | | |
| MKFC-GKTPs | not present | | | |
| mcvideo-client-id | px_MCVideo_Client_A_ID | The URI of the MCVideo Client | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| | "eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwiYXVkIjoibWNwdHRfY2xpZW50IiwiaXNzIjoiSWRNUy5zZXJ2ZXIuY29tOjkwMzEiLCJpYXQiOjE0NTM0OTgxNTgsImV4cCI6MTQ1Mz | The MCVideo client may validate the user with the ID token and configure itself for the user | TS 33.180 [94], clause B.4 RFC 6749 [77] | CONFIG |

| | | | | |
|---|---|---|---|---|
| | Q5ODQ1OCwibWNwdHRfaWQiOiJhbGljZUBvcmcuY29tIn0.Dpn7AhIMaqMEgg12NYUUfJGSFJMPG8M2li9FLtPotDlHvwU2emBws8z5JLw81SXQnoLqZ8ZF8tIhZ1W7uuMbufF4Wsr7PAadZixz3CnV2wxFV9qR_VA1-0ccDTPukUsRHsic0SgZ3aIbcYKd6VsehFe_GDwfqysYzD7yPwCfPZo" | | | |
| alert-ind-rcvd | not present | | | |
| anyExt | not present or any allowed value | | TS 24.281 [86] subclause F.1.3 | |

- MCData

**Table 5.5.3.2.1-3: MCData-Info from the UE**

| Derivation Path: TS 24.282 [87], Clause D.1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcdata-info | | | | |
| mcdata-Params | | | | |
| request-type | "one-to-one-sds" | | | MCD_1to1 |
| request-type | “group-sds” | | | MCD_grp |
| mcdata-request-uri | px_MCData_Group_A | | | MCD_grp |
| mcdata-calling-user-id | not present | | | |
| mcdata-called-party-id | not present | | | |
| mcdata-calling-group-id | not present | | | |
| alert-ind | not present | | | |
| originated-by | not present | | | |
| mcdata-client-id | px_MCData_Client_A_ID | | | MCD_grp |
| mcdata-controller-psi | not present | | | |

| Condition | Explanation |
|---|---|
| MCD_1to1 | A one-to-one MCData call |
| MCD_grp | A goup MCData call |
| For further conditions see table 5.5.1-1 | |

#### 5.5.3.2.2 MCPTT-Info from the SS

- MCPTT

**Table 5.5.3.2.2-1: MCPTT-Info from the SS**

| Derivation Path: TS 24.379 [9] subclause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcpttinfo | | | | |
| mcptt-Params | | | | |
| mcptt-access-token | not present | | | |
| session-type | "prearranged" | | | GROUP-CALL |
| | "private" | | | PRIVATE-CALL |
| mcptt-request-uri | px_MCPTT_User_A_ID | The URI of the called user | | |
| mcptt-calling-user-id | px_MCPTT_User_B_ID | The URI of the calling user | | |
| mcptt-called-party-id | not present | | | |
| mcptt-calling-group-id | px_MCPTT_Group_A_ID | The URI of the group | | GROUP-CALL |
| | not present | | | PRIVATE-CALL |
| required | not present | | | |
| emergency-ind | not present | | | |
| | "true" | | | EMERGENCY-CALL |
| alert-ind | not present | | | |
| | "true" | | | EMERGENCY-ALERT |
| imminentperil-ind | not present | | | |
| | "true" | | | IMMPERIL-CALL |
| broadcast-ind | not present | | | |
| mc-org" | not present | | | |
| floor-state | not present | | | |
| associated-group-id | not present | | | |
| originated-by | not present | | | |
| MKFC-GKTPs | not present | | | |
| mcptt-client-id | not present | | | |
| alert-ind-rcvd | not present | | | |
| anyExt | not present | | TS 24.379 [9], subclause F.1.3 | |

- MCVideo

**Table 5.5.3.2.2-2: MCVideo-Info from the SS**

| Derivation Path: TS 24.281 [86] Clause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcvideoinfo | | | | |
| mcvideo-Params | | | | |
| mcvideo-access-token | not present | | | |
| | "eyJhbGciOiJSUzI1NiJ9.eyJtY3B0dF9pZCI6ImFsaWNlQG9yZy5jb20iLCJleHAiOjE0NTM1MDYxMjEsInNjb3BlIjpbIm9wZW5pZCIsIjNncHA6bWNwdHQ6cHR0X3NlcnZlciJdLCJjbGllbnRfa | The access token is opaque to the MCVideo client | TS 33.180 [94] clause B.4 RFC 6749 [77] | CONFIG |

| Derivation Path: TS 24.281 [86] Clause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | WQiOiJtY3B0dF9jbGllbnQifQ.XYIqai4YKSZCKRNMLipGC_5nV4BE79IJpvjexWjIqqcqiEx6AmHHIRo0mhcxeCESrXei9krom9e8Goxr_hgF3szvgbwl8JRbFuv97XgepDLjEq4jL3Cbu41Q9b0WdXAdFmeEbiB8wo_xggiGwv6IDR1b3TgAAsdjkRxSK4ctIKPaOJSRmM7MKMcKhIug3BEkSC9-aXBTSIv5fAGN-ShDbPvHycBpjzKWXBvMIR5PaCg-9fwjELXZXdRwz8C6JbRM8aqzhdt4CVhQ3-Arip-S9CKd0tu-qhHfF2rvJDRlg8ZBiihdPH8mJs-qpTFep_1-kON3mL0_g54xVmlMwN0XQA" | | | |
| session-type | "prearranged" | | | GROUP-CALL |
| | "private" | | | PRIVATE-CALL |
| mcvideo-request-uri | px_MCVideo_Group_A_ID | The URI of the group | | GROUP-CALL |
| | px_MCVideo_Client_B_ID | The URI of the invited MCVideo Client | | PRIVATE-CALL |
| mcvideo-calling-user-id | not present or px_MCVideo_User_A_ID | | | |
| mcvideo-called-party-id | not present or px_MCVideo_User_B_ID | | | |
| mcvideo-calling-group-id | not present | | | |
| required | not present | | | |
| emergency-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-CALL |
| alert-ind | not present or if present then="false" | | | |
| | "true" | | | EMERGENCY-ALERT |
| imminentperil-ind | not present or if present then="false" | | | |
| | "true" | | | IMMPERIL-CALL |
| broadcast-ind | not present | | | |
| mc-org" | not present | | | |
| floor-state | not present | | | |
| associated-group-id | px_MCVideo_Group_A_ID if mcvideo-request-uri contains a temporary group identity; otherwise, not present | if the <mcvideo-request-uri> element contains a group identity then this element can include an MCVideo group ID associated with the group identity in the <mcvideo-request-uri> element. E.g. if the <mcvideo-request-uri> element contains a | TS 24.281 [86] subclause F.1.3 | GROUP-CALL |

| Derivation Path: TS 24.281 [86] Clause F.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | temporary group identity (TGI), then the <associated-group-id> element can contain the constituent MCVideo group ID | | |
| | not present | | | PRIVATE-CALL |
| originated-by | not present | | | |
| MKFC-GKTPs | not present | | | |
| mcvideo-client-id | px_MCVideo_Client_A_ID | The URI of the MCVideo Client | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| | "eyJhbGciOiJSUzI1NiJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwiYXVkIjoibWNwdHRfY2xpZW50IiwiaXNzIjoiSWRNUy5zZXJ2ZXIuY29tOjkwMzEiLCJpYXQiOjE0NTM0OTgxNTgsImV4cCI6MTQ1MzQ5ODQ1OCwibWNwdHRfaWQiOiJhbGljZUBvcmcuY29tIn0.Dpn7AhIMaqMEgg12NYUUfJGSFJMPG8M2li9FLtPotDlHvwU2emBws8z5JLw81SXQnoLqZ8ZF8tIhZ1W7uuMbufF4Wsr7PAadZixz3CnV2wxFV9qR_VA1-0ccDTPukUsRHsic0SgZ3aIbcYKd6VsehFe_GDwfqysYzD7yPwCfPZo" | The MCVideo client may validate the user with the ID token and configure itself for the user | TS 33.180 [94] clause B.4 RFC 6749 [77] | CONFIG |
| alert-ind-rcvd | not present | | | |
| anyExt | not present or any allowed value | | TS 24.281 [86] subclause F.1.3 | |

- MCData

**Table 5.5.3.2.2-3: MCData-Info from the SS**

| Derivation Path: TS 24.282 [87], Clause D.1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcdata-info | | | | |
| mcdata-Params | | | | |
| request-type | "one-to-one-sds" | | | MCD_1to1 |
| request-type | “group-sds” | | | MCD_grp |
| mcdata-request-uri | px_MCData_Group_A | | | MCD_grp |
| mcdata-calling-user-id | px_MCData_User_B_ID | | | |
| mcdata-called-party-id | px_MCData_User_A_ID | | | |
| mcdata-calling-group-id | not present | | | |
| alert-ind | not present | | | |
| originated-by | not present | | | |
| mcdata-client-id | px_MCData_Client_B_ID | | | |
| mcdata-controller-psi | not present | | | |

| **Condition** | **Explanation** |
|---|---|
| MCD_1to1 | A one-to-one MCData call |
| MCD_grp | A goup MCData call |
| For further conditions see table 5.5.1-1 | |

### 5.5.3.3 Resource-lists

#### 5.5.3.3.1 Resource-lists from the UE

- MCPTT

**Table 5.5.3.3.1-1: Resource-lists from the UE for MCPTT**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | TS 24.481 [11] | |
| name attribute | Not present | | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| name attribute | "uri: mcptt-op.gov:resource-lists" | | | CONFIG |
| display-name | Not present | | | |
| list | | | | |
| entry[1] | | | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| uri attribute | px_MCPTT_User_B_ID | The MCPTT ID of the invited user | | |
| display-name | Not present | | | |
| entry[1] | | | TS 24.481 [11] | CONFIG |
| uri attribute | "resource-lists/ue_configuration.xml/" | UE Configuration document | | |
| display-name | Not present | | | |
| entry[2] | | | TS 24.481 [11] | CONFIG |
| uri attribute | "resource-lists/ue_user_profile.xml/" | UE User Profile document | | |
| display-name | Not present | | | |
| entry[3] | | | TS 24.481 [11] | CONFIG |
| uri attribute | "resource-lists/ue_service_configuration.xml/" | UE Service Configuration document | | |
| display-name | Not present | | | |
| entry[1] | | | TS 24.481 [11] | GROUPCONFIG |
| uri attribute | "resource-lists/ue_group_configuration.xml/" | UE Group Configuration document | | |
| display-name | Not present | | | |

- MCVideo

**Table 5.5.3.3.1-2: Resource-lists from the UE for MCVideo**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| resource-lists | "uri: mcvideo-op.gov:resource-lists" | | TS 24.481 [11] | CONFIG |
| list | | | | |
| entry | px_MCVideo_User_B_ID | The MCVideo ID of the invited user | | PRIVATE-CALL GROUP-CALL EMERGENCY-CALL IMMPERIL-CALL EMERGENCY-ALERT |
| entry | "resource-lists/ue_configuration.xml/" | UE Configuration document | TS 24.481 [11] | CONFIG |
| entry | "resource-lists/ue_user_profile.xml/" | UE User Profile document | TS 24.481 [11] | CONFIG |
| entry | "resource-lists/ue_service_configuration.xml/" | UE Service Configuration document | TS 24.481 [11] | CONFIG |
| entry | "resource-lists/ue_group_configuration.xml/" | UE Group Configuration document | TS 24.481 [11] | GROUPCONFIG |

- MCData

**Table 5.5.3.3.1-3: Resource-lists from the UE for MCData**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | | |
| list | | | | |
| entry | px_MCData_User_B_ID | The MCData ID of the target MCData user | | |

### 5.5.3.3.2 Resource-lists from the SS

- MCPTT

**Table 5.5.3.3.2-1: Resource-lists from the SS for MCPTT**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | | |
| name attribute | Not present | | | |
| display-name | Not present | | | |
| list | | | | |
| entry[1] | | | | |
| uri attribute | px_MCPTT_User_A_ID | The MCPTT ID of the invited user | | |
| display-name | Not present | | | |

- MCVideo

**Table 5.5.3.3.2-2: Resource-lists from the SS for MCVideo**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | | |
| list | | | | |
| entry | px_MCVideo_User_A_ID | The MCVideo ID of the invited user | | |

- MCData

**Table 5.5.3.3.2-3: Resource-lists from the SS for MCData**

| Derivation Path: RFC 5366 [35] / RFC 4826 [83] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| resource-lists | | | | |
| list | | | | |
| entry | px_MCData_User_A_ID | The MCData ID of the invited user | | |

#### 5.5.3.4 Location-info

##### 5.5.3.4.1 Location-info (Report from the UE)

- MCPTT

**Table 5.5.3.4.1-1: Location-info (Report from the UE) for MCPTT**

| Derivation Path: TS 24.379 [9] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Report | | | | |
| TriggerID | not present | An element which can occur multiple times. Contains the value of the <TriggerId> attribute associated with a trigger that has fired. Only present if a trigger is the cause of the Location-info Report. | | |
| CurrentLocation | | A mandatory element that contains the location information | | |
| CurrentServingEcgi | any value if present | This is optional depending on the configuration sent by the SS | | |
| NeighbouringEcgi | any value if present | This is optional depending on the configuration sent by the SS | | |
| MbmsSaId | any value if present | This is optional depending on the configuration sent by the SS | | |
| MbsfnArea | any value if present | This is optional depending on the configuration sent by the SS | | |
| CurrentCoordinate | any value if present | This is optional depending on the configuration sent by the SS | | |
| ReportID | not present | Attribute is used to return the value in the <RequestId> attribute in the <Request> element. Only present in response to a Location-Info Request. | | |
| ReportType | "Emergency" | Required<br>The <ReportType> attribute has two values "Emergency" and "NonEmergency" used to inform whether the client is sending the report in an emergency situation or not. | | |
| EmergencyEventType | "GroupCallEmergency" | Editor's note: tEmergencyEventType is not part of location-info; it needs to be clarify whether or how it shall be included | | GROUP-CALL and EMERGENCY-CALL |
| | "GroupCallImminentPeril" | Editor's note: tEmergencyEventType is not part of location-info; it needs to be clarify whether or how it shall be included | | GROUP-CALL and IMMPERIL-CALL |

| Derivation Path: TS 24.379 [9] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | "PrivateCallEmergency" | Editor's note: tEmergencyEventType is not part of location-info; it needs to be clarify whether or how it shall be included | | PRIVATE-CALL and EMERGENCY-CALL |
| | "InitiateEmergencyAlert" | Editor's note: tEmergencyEventType is not part of location-info; it needs to be clarify whether or how it shall be included | | IMMPERIL-CALL |

- MCVideo

**Table 5.5.3.4.1-2: Location-info (Report from the UE) for MCVideo**

| Derivation Path: TS 24.281 [86] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Report | | | | |
| TriggerID | not present | An element which can occur multiple times. Contains the value of the <TriggerId> attribute associated with a trigger that has fired. Only present if a trigger is the cause of the Location-info Report. | | |
| CurrentLocation | | A mandatory element that contains the location information | | |
| CurrentServingEcgi | optional | This is optional depending on the configuration sent by the SS | | |
| NeighbouringEcgi | optional | This is optional depending on the configuration sent by the SS | | |
| MbmsSaId | optional | This is optional depending on the configuration sent by the SS | | |
| MbsfnArea | optional | This is optional depending on the configuration sent by the SS | | |
| CurrentCoordinate | optional | This is optional depending on the configuration sent by the SS | | |
| ReportID | not present | Attribute is used to return the value in the <RequestId> attribute in the <Request> element. Only present in response to a Location-Info Request. | | |
| ReportType | "Emergency" | Required<br>The <ReportType> attribute has two values "Emergency" and "NonEmergency" used to inform whether the client is sending the report in an emergency situation or not. | | |
| EmergencyEventType | "GroupCallEmergency" | | | GROUP-CALL and EMERGENCY-CALL |
| | "GroupCallImminentPeril" | | | GROUP-CALL and IMMPERIL-CALL |
| | "PrivateCallEmergency" | | | PRIVATE-CALL and EMERGENCY-CALL |

| Derivation Path: TS 24.281 [86] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | "InitiateEmergencyAlert" | | | IMMPERIL-CALL |

5.5.3.4.2 Location-info (Configuration sent by the SS)

- MCPTT

**Table 5.5.3.4.2-1: Location-info (Configuration sent by the SS) for MCPTT**

| Derivation Path: TS 24.379 [9] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Configuration | | | | |
| ConfigScope | "Full" | The MCPTT Client shall replace any previous configuration. | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | present | An optional element specifying that the serving E-UTRAN Cell Global Identity (ECGI) needs to be reported | | |
| NeighbouringEcgi | present | An optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported | | |
| MbmsSaId | present | An optional element specifying that the serving MBMS Service Area Id needs to be reported; | | |
| MbsfnArea | present | An optional element specifying that the MBSFN area Id needs to be reported; | | |
| GeographicalCoordinate | present | An optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [65] needs to be reported | | |
| minimumIntervalLength | "10" | A mandatory element specifying the minimum time the MCPTT client needs to wait between sending location reports. The value is given in seconds | | |
| EmergencyLocationInformation" | | | | |
| ServingEcgi | present | An optional element specifying that the serving E-UTRAN Cell Global Identity (ECGI) needs to be reported | | |
| NeighbouringEcgi | present | An optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported | | |
| MbmsSaId | present | An optional element specifying that the serving MBMS Service Area Id needs to be reported; | | |
| MbsfnArea | present | An optional element specifying that the MBSFN area Id needs to be reported; | | |

| Derivation Path: TS 24.379 [9] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| GeographicalCoordinate | present | An optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [65] needs to be reported | | |
| minimumIntervalLength | "5" | A mandatory element specifying the minimum time the MCPTT client needs to wait between sending location reports. The value is given in seconds | | |
| TriggeringCriteria | | | | |
| CellChange | not present | | | |
| TrackingAreaChange | not present | | | |
| PlmnChange | not present | | | |
| MbmsSaChange | not present | | | |
| MbsfnAreaChange | not present | | | |
| PeriodicReport | not present | | | |
| TravelledDistance | not present | | | |
| McpttSignallingEvent | not present | | | |
| GeographicalAreaChange | | | | |
| AnyAreaChange | not present | | | |
| EnterSpecificAreaType | not present | | | |
| ExitSpecificAreaType | not present | | | |

- MCVideo

**Table 5.5.3.4.2-2: Location-info (Configuration sent by the SS) for MCVideo**

| Derivation Path: TS 24.281 [86] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Configuration | | | | |
| ConfigScope | "Full" | The MCVideo Client shall replace any previous configuration. | | |
| NonEmergencyLocationInformation | | | | |
| ServingEcgi | present | An optional element specifying that the serving E-UTRAN Cell Global Identity (ECGI) needs to be reported | | |
| NeighbouringEcgi | present | An optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported | | |
| MbmsSaId | present | An optional element specifying that the serving MBMS Service Area Id needs to be reported; | | |
| MbsfnArea | present | An optional element specifying that the MBSFN area Id needs to be reported; | | |
| GeographicalCoordinate | present | An optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [65] needs to be reported | | |
| minimumIntervalLength | "10" | A mandatory element specifying the minimum time the MCVIdeo client needs to wait between sending location reports. The value is given in seconds | | |
| EmergencyLocationInformation" | | | | |
| ServingEcgi | present | An optional element specifying that the serving E-UTRAN Cell Global Identity (ECGI) needs to be reported | | |
| NeighbouringEcgi | present | An optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported | | |
| MbmsSaId | present | An optional element specifying that the serving MBMS Service Area Id needs to be reported; | | |
| MbsfnArea | present | An optional element specifying that the MBSFN area Id needs to be reported; | | |

| Derivation Path: TS 24.281 [86] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| GeographicalCoordinate | present | An optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [65] needs to be reported | | |
| minimumIntervalLength | "5" | A mandatory element specifying the minimum time the MCVideo client needs to wait between sending location reports. The value is given in seconds | | |
| TriggeringCriteria | | | | |
| CellChange | not present | | | |
| TrackingAreaChange | not present | | | |
| PlmnChange | not present | | | |
| MbmsSaChange | not present | | | |
| MbsfnAreaChange | not present | | | |
| PeriodicReport | not present | | | |
| TravelledDistance | not present | | | |
| McvideoSignallingEvent | not present | | | |
| GeographicalAreaChange | not present | | | |

### 5.5.3.4.3 Location-info (Request sent by the SS)

- MCPTT

**Table 5.5.3.4.3-1: Location-info (Request sent by the SS) for MCPTT**

| Derivation Path: TS 24.379 [9] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Request | | | | |
| RequestID | "1" | The RequestID that the MCPTT Client will reference in the Report | | |

- MCVideo

**Table 5.5.3.4.3-2: Location-info (Request sent by the SS) for MCVideo**

| Derivation Path: TS 24.281 [96] clause F.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| location-info | | | | |
| Request | | | | |
| RequestID | "1" | The RequestID that the MCVideo Client will reference in the Report | | |

### 5.5.3.5 PIDF

- MCPTT

**Table 5.5.3.5-1: PIDF for MCPTT**

| Derivation Path: TS 24.379 [9] subclause 9.3.1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| presence | | | | |
| entity attribute | px_MCPTT_Client_A_ID | | | |
| tuple | | | | |
| id attribute | px_MCPTT_Client_A_ID | | | |
| status | | | | |
| affiliation | | | | |
| group | px_MCPTT_Group_A_ID | | | |
| client | not present | | | |
| status | "affiliating" | | | |
| expires | not present | | | |
| contact | not present | | | |
| note | not present | | | |
| timestamp | not present | | | |
| note | not present | | | |
| p-id | any allowed value when sent by the UE or same value as sent in SIP PUBLISH otherwise | set to an identifier of a SIP PUBLISH request | | |

- MCVideo

**Table 5.5.3.5-2: PIDF for MCVideo**

| Derivation Path: TS 24.281 [86] clause 8.3.1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| presence entity | px_MCVideo_Client_A_ID | | | |
| tuple id | px_MCVideo_Client_A_ID | | | |
| status | | | | |
| affiliation | | | | |
| group | px_MCVideo_Group_A_ID | | | |
| client | not present | | | |
| status | | | | |
| affiliating | | | | |
| affiliated | not present | | | |
| deaffiliating | not present | | | |
| expires | not present | | | |
| p-id | any allowed value or same value as sent in SIP PUBLISH | set to an identifier of a SIP PUBLISH request | | |

- MCData

**Table 5.5.3.5-3: PIDF for MCData**

| Derivation Path: TS 24.282 [87] subclause 8.4.1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| presence entity | px_MCDATA_Client_A_ID | | | |
| tuple id | px_MCDATA_Client_A_ID | | | |
| status | | | | |
| affiliation | | | | |
| group | px_MCDATA_Group_A_ID | | | |
| client | not present | | | |
| status | | | | |
| affiliating | | | | |
| affiliated | not present | | | |
| deaffiliating | not present | | | |
| expires | not present | | | |
| p-id | any allowed value or same value as sent in SIP PUBLISH | set to an identifier of a SIP PUBLISH request | | |

### 5.5.3.6 SIMPLE-FILTER

- MCPTT

**Table 5.5.3.6-1: SIMPLE-FILTER for MCPTT**

| Derivation Path: TS 24.379 [9] subclause 9.3.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| filter-set | | | RFC 4661 [48] | |
| nc-bindings | | TS 24.379 [9] subclause 9.3.2.2 requires two separate ns-binding elements | RFC 4661 [48] | |
| ns-binding urn | | | RFC 4661 [48] | |
| prefix | "" | Editor's note: according to RFC 4661 the prefix is required nevertheless TS 24.379 says 'does not contain a "prefix" attribute' | | |
| urn | "urn:ietf:params:xml:ns:pidf" | | | |
| ns-binding urn | | | RFC 4661 [48] | |
| prefix | "mcpttPI10" | | | |
| urn | "urn:3gpp:ns:mcpttPresInfo:1.0" | | | |
| filter[1] | | | RFC 4661 [48] | |
| filter id | Any value | The value of the 'id' attribute has to be unique within the <filter-set> element | | |
| uri attribute | Not present | According to TS 24.379 | | |
| domain attribute | Not present | According to TS 24.379 | | |
| remove attribute | Not present | 'false' per default | | |
| enabled attribute | Not present | 'true' per default | | |
| what | | | RFC 4661 [48] | |
| include | "//presence/tuple[@id=" & px_MCPTT_Client_A_ID & "]" | contains the value, according to IETF RFC 4661 [48], set to concatenation of the '//presence/tuple[@id="' string, the MCPTT client ID, and the '"]' string | RFC 4661 [48] | |
| trigger | Not present | | | |

- MCVideo

**Table 5.5.3.6-2: SIMPLE-FILTER for MCVideo**

| Derivation Path: TS 24.281 [86] clause 8.3.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| filter-set | px_MCVideo_Client_A_ID | | RFC 4661 [48] | |
| nc-bindings | px_MCVideo_Client_A_ID | | RFC 4661 [48] | |
| ns-binding urn | "urn:ietf:params:xml:ns:pidf" | | RFC 4661 [48] | |
| ns-binding urn | "urn:3gpp:ns:mcvideoPresInfo:1.0" | TS 24.281 [86] subclause 8.3.2.2 requires two separate ns-binding elements | RFC 4661 [48] | |
| filter id | "123" | The value of the 'id' attribute has to be unique within the <filter-set> element.<br>Does not contain the 'uri' element.<br>Does not contain the 'domain' element. | RFC 4661 [48] | |
| what | | | RFC 4661 [48] | |
| include | //presence/tuple[@id=px_MCVideo_Client_A_ID] | contains the value, according to IETF RFC 4661 [48], set to concatenation of the '//presence/tuple[@id="' string, the MCVideo client ID, and the '"]' string | RFC 4661 [48] | |

- MCData

**Table 5.5.3.6-3: SIMPLE-FILTER for MCData**

| Derivation Path: TS 24.282 [87] clause 8.4.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| filter-set | px_MCData_Client_A_ID | | RFC 4661 [48] | |
| nc-bindings | px_MCData_Client_A_ID | | RFC 4661 [48] | |
| ns-binding urn | "urn:ietf:params:xml:ns:pidf" | | RFC 4661 [48] | |
| ns-binding urn | "urn:3gpp:ns:mcdataPresInfo:1.0" | TS 24.282 [87] subclause 8.4.2.2 requires two separate ns-binding elements | RFC 4661 [48] | |
| filter id | "123" | The value of the 'id' attribute has to be unique within the <filter-set> element.<br>Does not contain the 'uri' element.<br>Does not contain the 'domain' element. | RFC 4661 [48] | |
| what | | | RFC 4661 [48] | |
| include | //presence/tuple[@id= px_MCData_Client_A_ID] | contains the value, according to IETF RFC 4661 [48], set to concatenation of the '//presence/tuple[@id="' string, the MCData client ID, and the '"]' string | RFC 4661 [48] | |

## 5.5.3.7 AFFILIATION-COMMAND

- MCPTT

**Table 5.5.3.7-1: MCPTT-AFFILIATION-COMMAND for MCPTT**

| Derivation Path: TS 24.379 [9] clause F.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| command-list | | | | |
| affiliate | | | | |
| de-affiliate | not present | | | |
| group | px_MCPTT_Group_A_ID | MCPTT group name | | |

- MCVideo

**Table 5.5.3.7-2: MCVideo-AFFILIATION-COMMAND for MCVideo**

| Derivation Path: TS 24.281 [86] clause F.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| command-list | | | | |
| affiliate | | | | |
| de-affiliate | not present | | | |
| group | px_MCVideo_Group_A_ID | MCVideo group name | | |

- MCData

**Table 5.5.3.7-3: MCData-AFFILIATION-COMMAND for MCData**

| Derivation Path: TS 24.282 [87] clause D.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| command-list | | | | |
| affiliate | | | | |
| de-affiliate | not present | | | |
| group | px_MCData_Group_A_ID | MCData group name | | |

## 5.5.3.8 SDS Signaling Payload

### 5.5.3.8.1 SDS Signaling Payload from the UE

**Table 5.5.3.8.1-1: SDS Signaling Payload from the UE**

| Derivation Path: TS 24.282 [87] clause 15.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| SDS signalling payload message identity | "01000001" | SDS Signalling Payload | TS 24.282 [87] clause 15.2.2 | |
| Date and time | The current date and time | The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | TS 24.282 [87] clause 15.2.8 | |
| Conversation ID | Any allowed value | The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier. | TS 24.282 [87] clause 15.2.9 | |
| Message ID | Any allowed value | The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier | TS 24.282 [87] clause 15.2.10 | |
| InReplyTo message ID | Not present | | TS 24.282 [87] clause 15.2.11 | |
| Application ID | Not present | | TS 24.282 [87] clause 15.2.7 | |
| SDS disposition request type | "0001" | DELIVERY | TS 24.282 [87] clause 15.2.3 | |

#### 5.5.3.8.2 SDS Signaling Payload from the SS

**Table 5.5.3.8.2-1: SDS Signaling Payload from the SS**

| Derivation Path: TS 24.282 [87] clause 15.1.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| SDS signalling payload message identity | "01000001" | SDS Signalling Payload | TS 24.282 [87] clause 15.2.2 | |
| Date and time | The current date and time | The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | TS 24.282 [87] clause 15.2.8 | |
| Conversation ID | “00000001000000010000000010000001000000010000000100000001000000010000000100000001000000010000000100000001” | The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier. | TS 24.282 [87] clause 15.2.9 | |
| Message ID | “00000001000000010000000010000001000000010000000100000001000000010000000100000001000000010000000100000001” | The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier | TS 24.282 [87] clause 15.2.10 | |
| InReplyTo message ID | Not present | | TS 24.282 [87] clause 15.2.11 | |
| Application ID | Not present | | TS 24.282 [87] clause 15.2.7 | |
| SDS disposition request type | "0001" | DELIVERY | TS 24.282 [87] clause 15.2.3 | |

### 5.5.3.9 MCData Data Payload

**Table 5.5.3.9-1: MCData Data Payload**

| Derivation Path: TS 24.282 [87] clause 15.1.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Data payload message identity | "01000011" | Data payload | TS 24.282 [87] clause 15.2.2 | |
| Number of payloads | "1" | 1 payload | TS 24.282 [87] clause 15.2.12 | |
| Security parameters and Payload | As described in Table 5.5.3.12.3-1 | MCData Protected Payload Message | TS 33.180 [94] | MCD_1to1 |
| Payload | | | TS 24.282 [87] clause 15.2.13 | MCD_grp |
| Payload content type | "00000001" | TEXT | | |
| Payload data | "Test" | The data payload | | |

| Condition | Explanation |
|---|---|
| MCD_1to1 | A one-to-one MCData call |
| MCD_grp | A goup MCData call |
| For further conditions see table 5.5.1-1 | |

### 5.5.3.10 MCData Protected Payload Message

**Table 5.5.3.10-1: MCData Protected Payload Message**

| Derivation Path: TS 33.180 [94] clause 8.5.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Message Type | "01000011" | Message type – Data Payload | | |
| Date and Time | The current date and time | Date and Time of creation of protected payload message | | |
| Payload ID | “1” | The identifier for the payload. | | |
| Payload sequence number | “1” | The sequence number of the protected payload. | | |
| Algorithm | “DP_AES_128_GCM” | Protection of payloads shall support the following algorithms (cipher suites): DP_AES_128_GCM and DP_AES_256_GCM | | |
| IV | “11011100 10111001 00001000 01010001 01010000 10110011 11001111 00100001 11100010 11110111 11011111 01011011 01010100 00101100 00100101 10100010” | Initialisation vector (or nonce) for message. Length depends on the algorithm and key used. 128 bits or 256 bits depending on the algorithm. | | |
| DPPK-ID | PCK-ID | Key identifier 128 bits or 256 bits depending on the algorithm For one-to-one communications, DPPK-ID shall be the PCK-ID. For group communications, the DPPK ID shall be the GMK-ID | | |
| Payload | | Protected Payload (Ciphertext) | | |
| Payload content type | “00000001” | TEXT | | |
| Payload contents | “Test” | | | |

## 5.5.4 Default HTTP message and other information elements

### 5.5.4.1 General

The HTTP Messages are specified in RFC 2616 [26]. Wherever another reference apply to their content it is explicitly indicated.

The following conditions apply throughout subclause 5.5:

**Table 5.5.4-1: Conditions**

| Condition | Explanation |
|---|---|

| | |
|---|---|
| AUTH | Message/IE sent only as part of a MCPTT UE authentication |
| USERAUTH | Message/IE sent only as part of a MCPTT UE user authentication |
| UECONFIG | Message/IE sent only as part of a MCPTT UE configuration |
| UEUSERPROF | Message/IE sent only as part of a MCPTT UE User profile configuration |
| UESERVCONFIG | Message/IE sent only as part of a MCPTT UE service configuration |
| GROUPCONFIG | Message/IE sent only as part of a MCPTT group configuration |
| TOKEN | Message/IE sent only as part of a MCPTT token exchange |
| KMSINIT | Message/IE sent only as part of a MCPTT KMS initialisation |
| KMSKEY | Message/IE sent only as part of a MCPTT KMS key exchange |

### 5.5.4.2 GET

**Table 5.5.4.2-1: HTTP GET**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-Line** | | | | |
| Method | "GET" | | | |
| Request-URI | | | | |
| uri | px_MCPTT_IdM_Server_URI | | TS 33.180 [94] | AUTH |
| | px_MCPTT_XCAP_UE_Config_URI | points to UE Configuration document | TS 24.484 [14] | UECONFIG |
| | px_MCPTT_XCAP_User_Profile_URI | points to UE User Profile document | TS 24.484 [14] | UEUSERPROF |
| | px_MCPTT_XCAP_Service_Config_URI | points to UE Service Configuration document | TS 24.484 [14] | UESERVCONFIG |
| | px_MCPTT_XCAP_Group_Config_URI | points to group configuration document | TS 24.481 [11] | GROUPCONFIG |
| query | As described in Table 5.5.4.10.1-1 | | TS 33.180 [94] | AUTH |
| HTTP-Version | "HTTP/1.1" | | | |
| **Cache-Control** | | | RFC 2616 [26] | |
| cache-directive | "no-cache" | | | |
| **Content-Type** | | | | |
| media-type | "application/x-www-form-urlencoded" | | | AUTH |
| media-type | "application/x-www-form-urlencoded" | | | UECONFIG UEUSERPROF UESERVCONFIG GROUPCONFIG |
| **Message-body** | Not present | | | AUTH |
| **Message-body** | | | | UECONFIG UEUSERPROF UESERVCONFIG GROUPCONFIG |
| access-token | As described in the field 'access-token' in Table 5.5.4.10.4-1 | | | |

### 5.5.4.3 POST

**Table 5.5.4.3-1: HTTP POST**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| Method | "POST" | | | |
| Request-URI | | | | |
| uri | px_MCPTT_IdM_Server_URI | Editor's note: according to 33.180 D.2 it seems that for KMSINIT and KMSKEY the URI should have specific branches like "init" or "keyprov" | TS 33.180 [94] | |
| HTTP-Version | "HTTP/1.1" | | | |
| **Cache-Control** | | | RFC 2616 [26] | |
| cache-directive | "no-cache" | | | |
| **Authorization** | | | | USERAUTH |
| authentication-scheme | "Basic" | | RFC 2617 [72] | |
| base64-user-pass | px_MCPTT_User_A_username:px_MCPTT_User_A_password | Base64 encoded username:password | RFC 2617 [72] | |
| **Content-Type** | | | | |
| media-type | "application/x-www-form-urlencoded" | | | AUTH |
| media-type | "application/x-www-form-urlencoded" | | TS 33.180 [94] | TOKEN |
| media-type | application/x-www-form-urlencoded | | TS 33.180 [94] | KMSINIT |
| media-type | application/x-www-form-urlencoded | | TS 33.180 [94] | KMSKEY |
| **Message-body** | | | | AUTH |
| Authentication Request | As described in Table 5.5.4.10.1-1 | | | |
| **Message-body** | | | | TOKEN |
| Token request | As described in Table 5.5.4.10.3-1 | | | |
| **Message-body** | | | | KMSINIT |
| KMS Initialize | As described in Table 5.5.4.10.5-1 | | | |
| **Message-body** | | | | KMSINIT |
| KMS KeyProvision | As described in Table 5.5.4.10.7-1 | | | |

### 5.5.4.4 PUT

**Table 5.5.4.4-1: HTTP PUT**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-line** | | | | |
| Method | "PUT" | | | |
| Request-URI | px_MCPTT_GroupConfigDoc_URI | Points to the group configuration document | TS 24.481 [11] | GROUPCONFIG |
| **Content-Type** | | | | |
| media-type | application/vnd.oma.poc.groups+xml | | | |
| **Message-body** | | | | |
| **group** | | | | |
| xmlns:rl | "urn:ietf:params:xml:ns:resource-lists" | resource-lists xml namespace identifier | TS 24.481 [11] | |
| xmlns:cp | "urn:ietf:params:xml:ns:common-policy" | common-policy xml namespace identifier | TS 24.481 [11] | |
| xmlns:ocp | "urn:oma:xml:xdm:common-policy" | common-policy xml namespace identifier | TS 24.481 [11] | |
| xmlns:oxe | "urn:oma:xml:xdm:extensions" | extensions xml namespace identifier | TS 24.481 [11] | |
| xmlns:rmcpttgi | "urn:3gpp:ns:mcpttGroupInfo:1.0" | MCPTT group info namespace identifier | TS 24.481 [11] | |
| **list-service** | | | | |
| uri | px_MCPTT_Group_B_ID | uri of the MCPTT group | TS 24.481 [11] | |
| display-name | px_MCPTT_Group_B_name | group display name | TS 24.481 [11] | |
| **list** | | | | |
| **entry** | | | | |
| uri | px_MCPTT_Client_A_ID | User ID allowed to participate in this group | TS 24.481 [11] | |
| display-name | px_MCPTT_User_A_Profile_Name | User display name | TS 24.481 [11] | |
| user-priority | 1 | User priority | TS 24.481 [11] | |
| **entry** | | | | |
| uri | px_MCPTT_Client_B_ID | User ID allowed to participate in this group | TS 24.481 [11] | |
| display-name | px_MCPTT_User_B_Profile_Name | User display name | TS 24.481 [11] | |
| user-priority | 2 | User priority | TS 24.481 [11] | |
| **entry** | | | | |
| uri | px_MCPTT_Client_C_ID | User ID allowed to participate in this group | TS 24.481 [11] | |
| display-name | px_MCPTT_User_C_Profile_Name | User display name | TS 24.481 [11] | |
| user-priority | 3 | User priority | TS 24.481 [11] | |
| invite-members | "true" | Allow users to invite members to this group | TS 24.481 [11] | |
| max-participant-count | "3" | Maximum number of users in the group | TS 24.481 [11] | |
| **ruleset** | | | | |
| rule id | "a7c" | | TS 24.481 [11] | |
| **actions** | | | | |
| allow-initiate-conf | "true" | All conference calls | TS 24.481 [11] | |
| join-handling | "true" | Allow group join | TS 24.481 [11] | |
| emergency-call | "true" | Allow emergency call | TS 24.481 [11] | |
| imminent-peril-call | "true" | Allow imminent peril call | TS 24.481 [11] | |
| emergency-alert | "true" | All emergency alert | TS 24.481 [11] | |
| **supported-services** | | | | |
| service-enabler | "urn:urn-7:3gpp-service.ims.icsi.mcptt" | | TS 24.481 [11] | |
| group-priority | "5" | New group priority | TS 24.481 [11] | |

### 5.5.4.5 DELETE

**Table 5.5.4.5-1: HTTP DELETE**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Request-line** | | | | |
| Method | "DELETE" | | | |
| Request-URI | px_MCPTT_GroupConfigDoc_URI | Points to the group configuration document | TS 24.481 [11] | GROUPCONFIG |
| **Content-Type** | | | | |
| media-type | application/vnd.3gpp.GMOP+xml; charset="utf-8 | | | |
| **Message-body** | | | | |
| **gmop:document** | | | | |
| xmlns | "urn:oma:xml:poc:list-service" | list-service xml namespace identifier | TS 24.481 [11] | |
| xmlns:rl | "urn:ietf:params:xml:ns:resource-lists" | resource-lists xml namespace identifier | TS 24.481 [11] | |
| xmlns:cp | "urn:ietf:params:xml:ns:common-policy" | common-policy xml namespace identifier | TS 24.481 [11] | |
| xmlns:ocp | "urn:oma:xml:xdm:common-policy" | common-policy xml namespace identifier | TS 24.481 [11] | |
| xmlns:oxe | "urn:oma:xml:xdm:extensions" | extensions xml namespace identifier | TS 24.481 [11] | |
| xmlns:rmcpttgi | "urn:3gpp:ns:mcpttGroupInfo:1.0" | MCPTT group info namespace identifier | TS 24.481 [11] | |
| xmlns:gmop | "urn:3gpp:ns:mcpttGMOP:1.0" | | | |
| **gmop:request** | | | | |
| **group** | | | | |
| **list-service** | | | | |
| uri | "sip:mcptt-group-T@mcptt-op.gov" | Group identifier | TS 24.481 [11] | |

### 5.5.4.6 HTTP 200 (OK)

**Table 5.5.4.6-1: HTTP 200 (OK)**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| HTTP-Version | "HTTP/1.1" | | | |
| Status-Code | "200" | | | |
| Reason-Phrase | "OK" | | | |
| **Cache-Control** | | | RFC 2616 [26] | |
| cache-directive | "no-store" | | | |
| **Pragma** | | | RFC 2616 [26] | |
| pragma-directive | "no-cache" | | | |
| **Content-Length** | | | | |
| value | length of message-body | | | |
| **Content-Type** | | | | |
| media-type | "application/json;charset=UTF-8" | | TS 33.180 [94] | TOKEN |
| media-type | "application/xml" | Editor's note: Message-Body contains an XML document but there is no media-type specific for "urn:3gpp:ns:mcsecKMSSecExt:1.0" ⇒ "application/xml" to be confirmed | TS 33.180 [94] | KMSINIT |
| media-type | "application/xml" | Editor's note: Message-Body contains an XML document but there is no media-type specific for "urn:3gpp:ns:mcsecKMSSecExt:1.0" ⇒ "application/xml" to be confirmed | TS 33.180 [94] | KMSKEY |
| media-type | application/resource-lists+xml | | TS 24.484 [14] | UECONFIG |
| media-type | application/resource-lists+xml | | TS 24.484 [14] | UEUSERPROF |
| media-type | application/resource-lists+xml | | TS 24.484 [14] | UESERVCONFIG |
| media-type | application/resource-lists+xml | | TS 24.481 [11] | GROUPCONFIG |
| **Message-body** | | | | TOKEN |
| Token response | As described in Table 5.5.4.10.4-1 | | | |
| **Message-body** | | | | KMSINIT |
| KMS Certificate | As described in Table 5.5.4.10.6-1 | | | |
| **Message-body** | | | | KMSKEY |
| KMS Key Set | As described in Table 5.5.4.10.8-1 | | | |
| **Message-body** | | | | UECONFIG |
| mcptt-UE-configuration | As described in Table 5.5.8.2-1 | UE Configuration document returned | | |
| **Message-body** | | | | UEUSERPROF |
| mcptt-user-profile | As described in Table 5.5.8.3-1 | UE User Profile document returned | | |
| **Message-body** | | | | UESERVCONFIG |
| service-configuration-info | As described in Table 5.5.8.4-1 | UE Service Configuration document returned | | |

| | | | | |
|---|---|---|---|---|
| **Message-body** | | | | GROUPCONFIG |
| ue-group-configuration | As described in Table 5.5.7.1-1 | Group Configuration document returned | | |

### 5.5.4.7 HTTP 201 (Created)

**Table 5.5.4.7-1: HTTP 201 (Created)**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| HTTP-Version | "HTTP/1.1" | | | |
| Status-Code | "20" | | | |
| Reason-Phrase | "Created" | | | |
| **Cache-Control** | | | RFC 2616 [26] | |
| cache-directive | "no-store" | | | |
| **Pragma** | | | RFC 2616 [26] | |
| pragma-directive | "no-cache" | | | |
| **Content-Length** | | | | |
| value | length of message-body | | | |
| **Content-Type** | | | | GROUPCONFIG |
| media-type | application/resource-lists+xml | | TS 24.483 [13] | |
| **Message-body** | | | | GROUPCONFIG |
| ue-group-configuration | As described in Table 5.5.7.1-1 | Group Configuration document returned | | |

### 5.5.4.8 HTTP 302 (Found)

**Table 5.5.4.8-1: HTTP 302 (Found)**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| HTTP-Version | "HTTP/1.1" | | | |
| Status-Code | "302" | | | |
| Reason-Phrase | "Found" | | | |
| **Location** | | | | AUTH |
| Location-URI | | | | |
| uri | px_MCPTT_Client_A_ID | Identifier of the MCPTT client making the API request | TS 33.180 [94] | |
| query | As described in Table 5.5.4.10.2-1 | | | |

### 5.5.4.9 HTTP 409 (Conflict)

**Table 5.5.4.9-1: HTTP 409 (Conflict)**

| Derivation Path: RFC 2616 [26] | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Status-Line** | | | | |
| HTTP-Version | "HTTP/1.1" | | | |
| Status-Code | "409" | | | |
| Reason-Phrase | "URI constraint violated" | Conflict reason | TS 24.484 [14] | |

### 5.5.4.10 HTTP Message Bodies

#### 5.5.4.10.1 Authentication Request

**Table 5.5.4.10.1-1: Authentication Request**

| Derivation Path: TS 33.180 [94], subclause B.4.2.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| response-type | "code" | For native MCPTT clients the value shall be set to "code" | OpenID Connect 1.0 [95] | |
| client_id | px_MCPTT_Client_A_ID | Identifier of the MCPTT client making the API request | OpenID Connect 1.0 [95] | |
| scope | "3gpp:mcptt:ptt_server" "3gpp:mcptt:key_management_server" "3gpp:mcptt:config_management_server" "3gpp:mcptt:group_management_server" | Scope values are expressed as a list of space-delimited, case-sensitive strings which indicate which MCPTT resource servers the client is requesting access to | TS 33.180 [94] | |
| redirect_uri | px_MCPTT_User_A_Organization | The URI of the MCPTT client to which the IdM server will redirect the MCPTT client's user agent in order to return the authorization code | OpenID Connect 1.0 [95] | |
| state | any value as selected by the UE | An opaque value used by the MCPTT client to maintain state between the authentication request and authentication response | OpenID Connect 1.0 [95] | |
| acr-values | "3gpp:acr:password" | Space-separated string that specifies the acr values that the IdM server is being requested to use for processing this authentication request | TS 33.180 [94] | |
| code-challenge | any value | base64url-encoded SHA-256 challenge: hash of the code_verifier selected by the UE | TS 33.180 [94] RFC 7636 [100] | |
| codechallenge-method | "S256" | The hash method used to transform the code verifier to produce the code challenge | TS 33.180 [94] RFC 7636 [100] | |

### 5.5.4.10.2 Authentication Response

**Table 5.5.4.10.2-1: Authentication Response**

| Derivation Path: TS 33.180 [94], subclause B.4.2.3 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| code | "SplxlOBeZQQYbYS6 WxSbIA" | The authorization code generated by the authorization endpoint and returned to the MCPTT client via the authentication response | TS 33.180 [94] | |
| state | same value as in the Authentication Request | The value shall match the exact value used in the authorization request | TS 33.180 [94] | |

### 5.5.4.10.3 Token Request

**Table 5.5.4.10.3-1: Token Request**

| Derivation Path: TS 33.180 [94], subclause B.4.2.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| grant-type | "authorization_code" | | RFC 2616 [26] | |
| code | same value as assigned by the SS in the Authentication Response | The authorization code generated by the authorization endpoint and returned to the MCPTT client via the authentication response | TS 33.180 [94] | |
| client_id | px_MCPTT_Client_A_I D | Identifier of the MCPTT client making the API request | TS 33.180 [94] | |
| redirect_uri | px_MCPTT_User_A_O rganization | The URI of the MCPTT client to which the IdM server will redirect the MCPTT client's user agent | TS 33.180 [94] | |
| code_verifier | Value selected by the UE: The SS shall check that the code-challenge in the Authentication Request is the base64url-encoded SHA-256 hash of the code-verifier | A cryptographically random string that is used to correlate the authorization request to the token request; the minimum length is 43 characters, the maximum length of 128 characters | TS 33.180 [94] RFC 7636 [100] | |

5.5.4.10.4 Token Response

**Table 5.5.4.10.4-1: Token Response**

| Derivation Path: TS 33.180 [94], subclause B.4.2.5 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **access_token** | | The access token. The access token is opaque to the MCPTT client | RFC 6749 [77] TS 33.180 [94] | |
| { | | | | |
| { | | Header Algorithm | | |
| "kid" | "jws-rsa" | hint indicating which key was used to secure the JWS: name of the RSA public key in case of RS256 Editor's note: value to be confirmed | RFC 7515 [102] | |
| "alg" | "RS256" | identifies the cryptographic algorithm used to secure the JWS: RSASSA-PKCS1-v1_5 SHA-256 digital signature Editor's note: value to be confirmed | RFC 7515 [102] | |
| } | | | | |
| { | | Payload Data | RFC 7519 [101] | |
| "mcptt_id" | px_MCPTT_User_A_ID | URI of the MCPTT client User this is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.380 TS 24.483 | |
| "scope" | ["3gpp:mcptt:ptt_server" "3gpp:mcptt:key_management_server" "3gpp:mcptt:config_management_server" "3gpp:mcptt:group_management_server"] | list of space-delimited, case-sensitive strings to inform the client of the scope of the access token issued and is OPTIONAL, if identical to the scope requested by the client otherwise REQUIRED same as received in Authentication request by the UE | RFC 6749 [77] TS 33.180 [94] B.2.2.2 | |
| "exp" | Current system time + 7199 seconds; the system time is the number of seconds since 00:00:00 UTC on 1 January 1970 | Number containing a NumericData value identifies the expiration time on or after which the JWT MUST NOT be accepted for processing Editor's note: value to be confirmed | RFC 7519 [101] TS 33.180 [94] | |
| "client_id" | Same value as received in the token request | Identifier of the MCPTT client making the API request | TS 33.180 [94] | |
| } | | | | |
| Signature | HASH [base64UrlEncode(header) + "." + base64UrlEncode(payload)) | Created by the hash algorithm corresponding to the algorithm provided in the header | RFC 7515 [102] | |
| } | | | | |

| | | | | |
|---|---|---|---|---|
| **refresh_token** | "Y7NSzUJuS0Jp7G4S KpBKSOJVHIZxFbxqsq CIZhOEk9" | Arbitrarily selected string:<br>The refresh token that can be used to refresh the access token and avoid having to prompt the user for authentication again | RFC 6749 [77] | |
| **id_token** | | The MCPTT client may validate the user with the ID token and configure itself for the user | RFC 6749 [77]<br>TS 33.180 [94] | |
| { | | | | |
| { | | Header Algorithm | RFC 7515 [102] | |
| "kid" | "jws-rsa" | hint indicating which key was used to secure the JWS<br>Editor's note: value to be confirmed | | |
| "alg" | "RS256" | identifies the cryptographic algorithm used to secure the JWS<br>Editor's note: value to be confirmed | | |
| } | | | | |
| { | | Payload Data | RFC 7519 [101] | |
| "mcptt_id" | px_MCPTT_User_A_ID | URI of the MCPTT client User this is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.380<br>TS 24.483 | |
| "sub" | "1234567890" | Arbitrarily selected string: case-sensitive string containing a StringOrURI value which identifies the principal that is the subject of the JWT, and is optional | RFC 7519 [101] | |
| "aud" | Client_id as received in token request | Audience: identifies the recipients that the JWT is intended for and is optional | RFC 7519 [101] | |
| "iss" | px_MCPTT_IdM_Server_URI | Issuer:<br>case-sensitive string containing a StringOrURI value which identifies the principal that issued the JWT and is optional | RFC 7519 [101] | |
| "exp" | Current system time + 7199 seconds;<br>the system time is the number of seconds since 00:00:00 UTC on 1 January 1970 | Number containing a NumericData value identifies the expiration time on or after which the JWT MUST NOT be accepted for processing | RFC 7519 [101]<br>TS 33.180 [94] | |
| "iat" | Current system time Epoch time: number of seconds since 00:00:00 UTC on 1 January 1970 | Numeric value which identifies the time at which the JWT was issued<br>and is optional | RFC 7519 [101]<br>TS 33.180 [94] | |

| | | | | |
|---|---|---|---|---|
| } | | | | |
| Signature | HASH (base64UrlEncode(header) + "." + base64UrlEncode(payload)) | Created by the hash algorithm corresponding to the algorithm provided in the header | RFC 7515 [102] | |
| } | | | | |
| token-type | "Bearer" | The token type for access | RFC 6749 [77] | |
| expires-in | "7199" | Token expiry time | RFC 6749 [77] | |

Editor's note: It is to be clarified whether the identifiers for mcdata and mcvideo are to be added in the table above or whether explicit tables are to be defined.

### 5.5.4.10.5 KMS Initialize

**Table 5.5.4.10.5-1: KMS Initialize**

| Derivation Path: TS 33.180 [94], subclause D.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| id_token | ID token as assigned to the UE by Token Response | The MCPTT client may validate the user with the ID token and configure itself for the user | RFC 6749 [77] | |
| access_token | Access token as assigned to the UE by Token Response | The access token. The access token is opaque to the MCPTT client | RFC 6749 [77] | |

5.5.4.10.6 KMS Certificate

**Table 5.5.4.10.6-1: KMS Certificate**

| Derivation Path: TS 33.180 [94], subclause D.3.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Version | "1.1.0" | The version number of the certificate type | | |
| Role | "Root" | This shall indicate whether the certificate is a "Root" or "External" certificate | | |
| CertUri | px_MCPTT_CertUri | The URI of the Certificate (this object) | | |
| KmsUri | px_MCPTT_KmsUri | The URI of the KMS which issued the Certificate | | |
| Issuer | Not present | (Optional) String describing the issuing entity | | |
| ValidFrom | Not present | (Optional) Date from which the Certificate may be used | | |
| ValidTo | Not present | (Optional) Date at which the Certificate expires | | |
| Revoked | false | (Optional) A Boolean value defining whether a Certificate has been revoked | | |
| UserIDFormat | "2" | Shall contain the value '2' | | |
| UserKeyPeriod | "2592000" | The number of seconds that each user key issued by this KMS should be used (2592000 seconds are 30 days) | | |
| UserKeyOffset | CurrentTimestamp MODULO UserKeyPeriod | UserKeyOffset so that KeyPeriod starts at current system time; CurrentTimestamp is the current system time in seconds since 0h on 1st Jan 1900 | | |
| PubEncKey | SAKKE Public Key Z_T derived from master secret z_T according to RFC 6508 | The SAKKE Public Key, "Z_T". This is an OCTET STRING encoding of an elliptic curve point | RFC 6508 [99] | |
| PubAuthKey | ECCSI Public Key KPAK derived from private key KSAK according to RFC 6507 | The ECCSI Public Key, "KPAK". This is an OCTET STRING encoding of an elliptic curve point | RFC 6507 [98] | |
| ParameterSet | Not present | (Optional) The choice of parameter set used for SAKKE and ECCSI | | |
| KmsDomainList | Not present | (Optional) List of domains associated with the certificate | | |

#### 5.5.4.10.7 KMS KeyProvision

**Table 5.5.4.10.7-1: KMS KeyProvision**

| Derivation Path: TS 33.180 [94], subclause D.2.4 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| id-token | ID token as assigned to the UE by Token Response | The MCPTT client may validate the user with the ID token and configure itself for the user | RFC 6749 [77] | |
| access-token | ID token as assigned to the UE by Token Response | The access token. The access token is opaque to the MCPTT client | RFC 6749 [77] | |

#### 5.5.4.10.8 KMS Key Set

**Table 5.5.4.10.8-1: KMS Key Set**

| Derivation Path: TS 33.180 [94], subclause D.3.2.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **KmsResponse** | | | | |
| Id | “kmsResponse” | arbitrarily selected id which the Signature’s Reference URI refers to | | |
| KmsUri | px_MCPTT_KmsUri | The URI of the KMS which issued the key set | | |
| UserUri | px_MCPTT_Client_A_ID | URI of the user for which the key set is issued | | |
| Time | Current system time of the SS | Time stamp of KMS message | | |
| KmsId | px_MCPTT_KmsId | The ID of the KMS that issues the key set | | |
| ClientReqUrl | px_MCPTT_KmsClientUrl | URL of the client making the key request | | |
| **KmsMessage** | | | | |
| KmsKeyProvVersion | "1.0.0" | The version number of the key provision XML | | |
| KmsKeySetVersion | "1.1.0" | The version number of the key set XML | | |
| KmsUri | px_MCPTT_KmsUri | The URI of the KMS which issued the key set | | |
| CertUri | Not present | (Optional) The URI of the Certificate which may be used to validate the key set | | |
| Issuer | Not present | (Optional) String describing the issuing entity | | |
| UserUri | px_MCPTT_Client_A_ID | URI of the user for which the key set is issued | | |
| UserID | UID generated according to annex F.2.1 of TS 33.180 [94] with MCPTT-Id as identifier<br><br>Editor’s note: to be clarified how to convert the UID into charstring (e.g. hexstring representation or base64 encoding) | UID corresponding to the key set | TS 33.180 [94] | |
| ValidFrom | Not present | (Optional) Date and time from which the key set may be used | | |
| ValidTo | Not present | (Optional) Date and time at which the key set expires | | |
| KeyPeriodNo | FLOOR((CurrentTimestamp - UserKeyOffset) / UserKeyPeriod) | Current Key Period: CurrentTimestamp is the current system time in seconds since 0h on 1st Jan 1900; UserKeyOffset and UserKeyPeriod are given in the KMS Certificate (Table 5.5.4.10.6-1) in seconds | TS 33.180 [94] | |

| Derivation Path: TS 33.180 [94], subclause D.3.2.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **KmsResponse** | | | | |
| Revoked | "false" | (Optional) A Boolean value defining whether the key set has been revoked | | |
| **UserDecryptKey** | | The SAKKE "Receiver Secret Key" (RSK). This is an OCTET STRING encoding of an elliptic curve point | RFC 6508 [99] | |
| EncryptionAlgorithm | "AES256" | Encryption algorithm to use | | |
| KeyInfo | | | | |
| KeyName | px_MCPTT_UserDecryptKey_name | Key name corresponding to px_MCPTT_UserDecryptKey_value | | |
| CipherData:value | | | | |
| CipherValue | RSK ciphered with px_MCPTT_UserDecryptKey_value as transport key (TrK) | | | |
| **UserSigningKeySSK** | | The ECCSI private Key, "SSK". This is an OCTET STRING encoding of an integer; the PVT is generated using the UID as contained in the UserID of the KSM message | RFC 6507 [98] | |
| EncryptionAlgorithm | "AES256" | Encryption algorithm to use | | |
| KeyInfo | | | | |
| KeyName | px_MCPTT_UserSigningKeySSK_name | Key name corresponding to px_MCPTT_UserSigningKeySSK_value | | |
| CipherData | | | | |
| CipherValue | SSK ciphered with px_MCPTT_UserSigningKeySSK_value as transport key (TrK) | | | |
| **UserPubTokenPVT** | | The ECCSI public validation token, "PVT". This is an OCTET STRING encoding of an elliptic curve point; the PVT is generated using the UID as contained in the UserID of the KSM message | RFC 6507 [98] | |
| EncryptionAlgorithm | "AES256" | Encryption algorithm to use | | |
| KeyInfo | | | | |
| KeyName | px_MCPTT_UserPubTokenPVT_name | Key name corresponding to px_MCPTT_UserPubTokenPVT_value | | |
| CipherData | | | | |
| CipherValue | PVT ciphered with px_MCPTT_UserSigningKeyPVT_value as transport key (TrK) | | | |
| **Signature:xmlns** | | | | |
| **SignedInfo** | | | | |

| Derivation Path: TS 33.180 [94], subclause D.3.2.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **KmsResponse** | | | | |
| CanonicalizationAlgorithm | "xml-c14n" | XML Signature processing | | |
| SignatureAlgorithm | "HMAC-SHA-256" | Hashing algorithm to be applied to sign the SignedInfo with the key given in the KeyInfo | | |
| Reference | | | | |
| URI | “#kmsResponse” | referring to the data object for which the hash is generatet (KMS response element in this case) | | |
| DigestAlgorithm | "SHA-256" | Hashing algorithm to be applied to sign the data object | | |
| DigestValue | Hash signing the data object (referred to by the URI) | | | |
| SignatureValue | Hash signing the SignedInfo using px_MCPTT_SigningKey_value | | | |
| KeyInfo:key | | | | |
| KeyName | px_MCPTT_SigningKey_name | Key name corresponding to px_MCPTT_SigningKey_value | | |

## 5.5.5 Default MCPTT call control Off-network messages and other information elements

### 5.5.5.1 GROUP CALL PROBE

**Table 5.5.5.1-1: GROUP CALL PROBE**

| Derivation Path: TS 24.379 [9] Table 15.1.2.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |

### 5.5.5.2 GROUP CALL ANNOUNCEMENT

#### 5.5.5.2.1 GROUP CALL ANNOUNCEMENT from the UE

**Table 5.5.5.2.1-1: GROUP CALL ANNOUNCEMENT from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.3.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65535) generated at the beginning of a call establishment | | |
| Call type | "00000001" | Basic Group Call | |
| Refresh interval | 10000 | The Refresh interval contains a number denoting the minimum time interval (milliseconds) between two successive periodic announcements. NOTE: In release 13.7 of TS 24.379 [9], the refresh interval of the call is fixed to 10 seconds. | |
| Call start time | The Call start time value is an unsigned integer containing UTC time of the time when a call was started, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.3-1 | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | pre-set MCPTT user ID | |
| Last user to change call type | The ID of the last user to change contents | | |
| Confirm mode indication | Present | | |
| Probe response | Not Present | | |

### 5.5.5.2.2 GROUP CALL ANNOUNCEMENT from the SS

**Table 5.5.5.2.2-1: GROUP CALL ANNOUNCEMENT from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.3.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65535) generated at the beginning of a call establishment | | |
| Call type | "00000001" | Basic Group Call | |
| Refresh interval | 10000 | The Refresh interval contains a number denoting the minimum time interval (milliseconds) between two successive periodic announcements. NOTE: In release 13.7 of TS 24.379 [9], the refresh interval of the call is fixed to 10 seconds. | |
| Call start time | The Call start time value is an unsigned integer containing UTC time of the time when a call was started, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.4-1 | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | pre-set MCPTT user ID | |
| Last user to change call type | The ID of the last user to change contents | | |
| Confirm mode indication | Present | | |
| Probe response | Not Present | | |

### 5.5.5.3 GROUP CALL ACCEPT

#### 5.5.5.3.1 GROUP CALL ACCEPT from the UE

**Table 5.5.5.3.1-1: GROUP CALL ACCEPT from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.4.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Call type | "00000001" | Basic Group Call | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_A_ID | | |

#### 5.5.5.3.2 GROUP CALL ACCEPT from the SS

**Table 5.5.5.3.2-1: GROUP CALL ACCEPT from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.4.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Call type | "00000001" | Basic Group Call | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_B_ID | | |

### 5.5.5.4 GROUP CALL EMERGENCY END

#### 5.5.5.4.1 GROUP CALL EMERGENCY END from the UE

**Table 5.5.5.4.1-1: GROUP CALL EMERGENCY END from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.15.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last user to change call type | The ID of the last user to change contents | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |

#### 5.5.5.4.2 GROUP CALL EMERGENCY END from the SS

**Table 5.5.5.4.2-1: GROUP CALL EMERGENCY END from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.15.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last user to change call type | The ID of the last user to change contents | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |

## 5.5.5.5 GROUP CALL IMMINENT PERIL END

### 5.5.5.5.1 GROUP CALL IMMINENT PERIL END from the UE

**Table 5.5.5.5.1-1: GROUP CALL IMMINENT PERIL END from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.14.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last user to change call type | The ID of the last user to change contents | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |

### 5.5.5.5.2 GROUP CALL IMMINENT PERIL END from the SS

**Table 5.5.5.5.2-1: GROUP CALL IMMINENT PERIL END from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.14.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Last call type change time | The Last call type change time value is an unsigned integer containing UTC time of the time when a call priority was changed, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). | | |
| Last user to change call type | The ID of the last user to change contents | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |

### 5.5.5.6 GROUP CALL BROADCAST

#### 5.5.5.6.1 GROUP CALL BROADCAST from the UE

**Table 5.5.5.6.1-1: GROUP CALL BROADCAST from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.20.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Call type | "00000010" | Broadcast Group Call | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.3-1 | | |

#### 5.5.5.6.2 GROUP CALL BROADCAST from the SS

**Table 5.5.5.6.2-1: GROUP CALL BROADCAST from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.20.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Call type | "00000010" | Broadcast Group Call | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.4-1 | | |

### 5.5.5.7 GROUP CALL BROADCAST END

#### 5.5.5.7.1 GROUP CALL BROADCAST END from the UE

**Table 5.5.5.7.1-1: GROUP CALL BROADCAST END from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.21.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.3-1 | | |

#### 5.5.5.7.2 GROUP CALL BROADCAST END from the SS

**Table 5.5.5.7.2-1: GROUP CALL BROADCAST END from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.21.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| SDP | As described in Table 5.5.3.1.4-1 | | |

### 5.5.5.8 PRIVATE CALL SETUP REQUEST

#### 5.5.5.8.1 PRIVATE CALL SETUP REQUEST from the UE

**Table 5.5.5.8.1-1: PRIVATE CALL SETUP REQUEST from the UE**

| Derivation Path: 24.379 [9], Table 15.1.5.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Commencement mode | "00000000" | Automatic Commencement Mode | |
| Call type | "00000101" | Private Call | |
| MCPTT user ID of the caller | px_MCPTT_User_A_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_B_ID | | |
| SDP offer | As described in Table 5.5.3.1.3-1 | | |
| User location | Not Present | | |

#### 5.5.5.8.2 PRIVATE CALL SETUP REQUEST from the SS

**Table 5.5.5.8.2-1: PRIVATE CALL SETUP REQUEST from the SS**

| Derivation Path: 24.379 [9], Table 15.1.5.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| Commencement mode | "00000000" | Automatic Commencement Mode | |
| Call type | "00000101" | Private Call | |
| MCPTT user ID of the caller | px_MCPTT_User_B_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_A_ID | | |
| SDP offer | As described in Table 5.5.3.1.4-1 | | |
| User location | Not Present | | |

### 5.5.5.9 PRIVATE CALL RINGING

**Table 5.5.5.9-1: PRIVATE CALL RINGING**

| Derivation Path: 24.379 [9], Table 15.1.6.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |

### 5.5.5.10 PRIVATE CALL ACCEPT

**Table 5.5.5.10-1: PRIVATE CALL ACCEPT**

| Derivation Path: 24.379 [9], Table 15.1.7.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| SDP answer | Same as the one in PRIVATE CALL SETUP REQUEST | | |

### 5.5.5.11 PRIVATE CALL REJECT

#### 5.5.5.11.1 PRIVATE CALL REJECT from the UE

**Table 5.5.5.11.1-1: PRIVATE CALL REJECT from the UE**

| Derivation Path: 24.379 [9], Table 15.1.8.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| Reason | Any allowed value | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| SDP answer | As described in Table 5.5.3.1.3-1 | | |

#### 5.5.5.11.2 PRIVATE CALL REJECT from the SS

**Table 5.5.5.11.2-1: PRIVATE CALL REJECT from the SS**

| Derivation Path: 24.379 [9], Table 15.1.8.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| Reason | "00000000" | Reason = REJECT | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| SDP answer | As described in Table 5.5.3.1.4-1 | | |

### 5.5.5.12 PRIVATE CALL RELEASE

**Table 5.5.5.12-1: PRIVATE CALL RELEASE**

| Derivation Path: 24.379 [9], Table 15.1.9.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |

### 5.5.5.13 PRIVATE CALL RELEASE ACK

**Table 5.5.5.13-1: PRIVATE CALL RELEASE ACK**

| Derivation Path: 24.379 [9], Table 15.1.10.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |

### 5.5.5.14 PRIVATE CALL ACCEPT ACK

**Table 5.5.5.14-1: PRIVATE CALL ACCEPT ACK**

| Derivation Path: 24.379 [9], Table 15.1.11.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the caller | Same as the one in PRIVATE CALL SETUP REQUEST | | |
| MCPTT user ID of the callee | Same as the one in PRIVATE CALL SETUP REQUEST | | |

### 5.5.5.15 PRIVATE CALL EMERGENCY CANCEL

#### 5.5.5.15.1 PRIVATE CALL EMERGENCY CANCEL from the UE

**Table 5.5.5.15.1-1: PRIVATE CALL EMERGENCY CANCEL from the UE**

| Derivation Path: 24.379 [9], Table 15.1.12.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| MCPTT user ID of the caller | px_MCPTT_User_A_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_B_ID | | |

#### 5.5.5.15.2 PRIVATE CALL EMERGENCY CANCEL from the SS

**Table 5.5.5.15.2-1: PRIVATE CALL EMERGENCY CANCEL from the SS**

| Derivation Path: 24.379 [9], Table 15.1.12.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | a random number uniformly distributed between (0, 65536) generated at the beginning of a call establishment | | |
| MCPTT user ID of the caller | px_MCPTT_User_B_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_A_ID | | |

## 5.5.5.16 PRIVATE CALL EMERGENCY CANCEL ACK

### 5.5.5.16.1 PRIVATE CALL EMERGENCY CANCEL ACK from the UE

**Table 5.5.5.16.1-1: PRIVATE CALL EMERGENCY CANCEL ACK from the UE**

| Derivation Path: 24.379 [9], Table 15.1.13.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL EMERGENCY CANCEL | | |
| MCPTT user ID of the caller | px_MCPTT_User_A_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_B_ID | | |

### 5.5.5.16.2 PRIVATE CALL EMERGENCY CANCEL ACK from the SS

**Table 5.5.5.16.2-1: PRIVATE CALL EMERGENCY CANCEL ACK from the SS**

| Derivation Path: 24.379 [9], Table 15.1.13.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Call identifier | Same as the one in PRIVATE CALL EMERGENCY CANCEL | | |
| MCPTT user ID of the caller | px_MCPTT_User_B_ID | | |
| MCPTT user ID of the callee | px_MCPTT_User_A_ID | | |

## 5.5.5.17 GROUP EMERGENCY ALERT

### 5.5.5.17.1 GROUP EMERGENCY ALERT from the UE

**Table 5.5.5.17.1-1: GROUP EMERGENCY ALERT from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.16.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |
| Organization name | Any allowed value | | |
| User location | Not Present | | |

### 5.5.5.17.2 GROUP EMERGENCY ALERT from the SS

**Table 5.5.5.17.2-1: GROUP EMERGENCY ALERT from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.16.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |
| Organization name | px_MCPTT_Group_A_Owner_Organization | | |
| User location | Not Present | | |

## 5.5.5.18 GROUP EMERGENCY ALERT ACK

### 5.5.5.18.1 GROUP EMERGENC ALERT ACK from the UE

**Table 5.5.5.18.1-1: GROUP EMERGENCY ALERT ACK from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.17.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_A_ID | | |

### 5.5.5.18.2 GROUP EMERGENC ALERT ACK from the SS

**Table 5.5.5.18.2-1: GROUP EMERGENCY ALERT ACK from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.17.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_B_ID | | |

## 5.5.5.19 GROUP EMERGENCY ALERT CANCEL

### 5.5.5.19.1 GROUP EMERGENCY ALERT CANCEL from the UE

**Table 5.5.5.19.1-1: GROUP EMERGENCY ALERT CANCEL from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.18.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_A_ID | | |

### 5.5.5.19.2 GROUP EMERGENCY ALERT CANCEL from the SS

**Table 5.5.5.19.2-1: GROUP EMERGENCY ALERT CANCEL from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.18.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_B_ID | | |

## 5.5.5.20 GROUP EMERGENCY ALERT CANCEL ACK

### 5.5.5.20.1 GROUP EMERGENCY ALERT CANCEL ACK from the UE

**Table 5.5.5.20.1-1: GROUP EMERGENCY ALERT CANCEL ACK from the UE**

| Derivation Path: TS 24.379 [9] Table 15.1.19.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_B_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_A_ID | | |

#### 5.5.5.20.2 GROUP EMERGENCY ALERT CANCEL ACK from the SS

**Table 5.5.5.20.2-1: GROUP EMERGENCY ALERT CANCEL ACK from the SS**

| Derivation Path: TS 24.379 [9] Table 15.1.19.1-1 | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| MCPTT group ID | px_MCPTT_Group_A_ID | | |
| Originating MCPTT user ID | px_MCPTT_User_A_ID | | |
| Sending MCPTT user ID | px_MCPTT_User_B_ID | | |

## 5.5.6 Default MCPTT media plane control messages and other information elements

### 5.5.6.1 General

The media plane control protocols messages specified in the present document are based on those specified in TS 24.380 [10] which in term are based on the RTCP Application Packets (RTCP: APP), as defined in IETF RFC 3550 [76].

Depending on the TC scenario, the same MCPTT media plane control message can be sent by the SS or by the UE. Throughout the default content specified in below a particular value has been chosen to satisfy one or the other scenario. It is expected that when a message is used in a TC in a particular context then the relevant for the usage in the TC values will be defined in the TC.

The following conditions apply throughout subclause 5.5.6:

**Table 5.5.6.1-1: Conditions**

| Condition | Explanation |
|---|---|
| ON-NETWORK | Message sent in on-network scenario. |
| OFF-NETWORK | Message sent in off-network scenario. |
| PRIVATE-CALL | Message sent as part of a Private call handling. |
| GROUP-CALL | Message sent as part of a Group call handling. |

Considerations in regard to describing specific values:

- SSRC

  - Synchronization SouRCe (SSRC) values are used in most of the messages specified in subclause 5.5.6. The SSRC value is randomly chosen by the participant in, and globally unique within, an RTP session as specified in IETF RFC 3550 [76]. Because the value chosen by the UE (MCPTT client) cannot be controlled, specifying a "hard coded" value to be used by the SS (MCPTT server) or the SS-UE (MCPTT Client) is prone to triggering a collision by choosing a value which may be the same as the one chosen by the UE. How to resolve SSRC collisions is described in IETF RFC 3550 [76] however, resolving them as part of the MCPTT test case definitions e.g. in TS 36.579-2 [2] is not foreseen and is left to the test implementation.

  - For the purposes of default and specific messages definition throughout the present specification, as well as, throughout the rest of the MCPTT conformance test specifications e.g. the TS 36.579-2 [2] no explicit SSRC values are defined and instead the following notation is used to clarify the messages origin/destination:

- When there is no danger for misunderstanding the notation 'The SSRC of the message sender' and the 'The SSRC of the intended recipient of the message' are used whereas the "sender" and the "recipient" are to be understood in the context of the test i.e. the test entities being involved to exchange messages.

- When in doubt, the notations 'UE (MCPTT client) SSRC', SS (MCPTT server) SSRC', 'SS-UE1 (MCPTT Client) SSRC' or 'SS-UE2 (MCPTT Client) SSRC' are used.

### 5.5.6.2 Floor Request

**Table 5.5.6.2-1: Floor Request**

| Derivation Path: 24.380 [10], Table 8.2.4-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor participant sending the message. Notation in accordance with subclause 5.5.6.1. | |
| Floor priority | Not present or Any allowed value | If present, a value between ‘0’ and ‘255’ where '0' is the lowest priority<br><br>If the Floor Priority field is not included in the message the default priority (='0') is used as the Floor Priority value<br><br>The max floor priority that can be requested in a Floor Request message is negotiated between the MCPTT client and the controlling MCPTT function using the "mc_priority" fmtp parameter e.g. at call setup | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT User ID of the floor participant requesting the floor. | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.3 Floor Granted

**Table 5.5.6.3-1: Floor Granted**

| Derivation Path: 24.380 [10], Table 8.2.5-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network. Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| Duration | | | |
| Duration | "00000000 10000000" | 128 sec (an arbitrary value) | |
| SSRC of granted floor participant | The SSRC of the intended recipient of the message | Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| Floor priority | Not present | If the Floor Priority field is not included in the message the default priority (='0') is used as the Floor Priority value | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT User ID of the floor participant granted the floor. | |
| Queue Size | Not present | | ON-NETWORK |
| Queue Size | "0" | the number of queued MCPTT clients in the MCPTT call | OFF-NETWORK |
| SSRC of queued floor participant | Not present | | |
| Queued User ID | Not present | | |
| Queue Info | Not present | | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.4 Floor Deny

**Table 5.5.6.4-1: Floor Deny**

| Derivation Path: 24.380 [10], Table 8.2.6-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network. Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| Reject Cause | | | |
| Reject Cause | "1" | Cause #1 - Another MCPTT client has permission | |
| Reject Phrase | "Another MCPTT client has permission" | An additional text string explaining the reason for rejecting the floor request. | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT User ID of the floor participant being denied floor request. | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.5 Floor Release

**Table 5.5.6.5-1: Floor Release**

| Derivation Path: 24.380 [10], Table 8.2.7-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor participant sending the message. Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76] | |
| name | MCPT | | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT User ID of the floor participant releasing the floor. | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.6 Floor Idle

**Table 5.5.6.6-1: Floor Idle**

| Derivation Path: 24.380 [10], Table 8.2.8-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| Message Sequence Number | | | |
| Message Sequence Number | The value sent in the previous Floor Idle message, if any, increased with 1 | Any value between '0' and '65535'<br>When the '65535' value is reached, the <Message Sequence Number> value starts from '0' again | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.7 Floor Taken

**Table 5.5.6.7-1: Floor Taken**

| Derivation Path: 24.380 [10], Table 8.2.9-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT user ID of the floor participant sending the Floor Taken message | |
| Granted Party's Identity | | | |
| Granted Party's Identity | px_MCPTT_User_B_ID | The MCPTT User ID of the floor participant being granted the floor. | |
| Permission to Request the Floor | | | |
| Permission to Request the Floor | "1" | The receiver is permitted to request floor | |
| Message Sequence Number | | | |
| Message Sequence Number | The value sent in the previous Floor Taken message, if any, increased with 1 | Any value between '0' and '65535'<br>When the '65535' value is reached, the <Message Sequence Number> value starts from '0' again | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |
| SSRC of granted floor participant | SS-UE1 (MCPTT Client) SSRC | The SSRC of the granted floor participant. | |

### 5.5.6.8 Floor Revoke

**Table 5.5.6.8-1: Floor Revoke**

| Derivation Path: 24.380 [10], Table 8.2.10.1-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| Reject Cause | | | |
| Reject Cause | "4" | Cause#4 - Media Burst pre-empted | |
| Reject Phrase | "Media Burst pre-empted" | a text string encoded the text string in the SDES item CNAME as specified in IETF RFC 3550 [76], subclause 6.5.1. | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.9 Floor Queue Position Request

**Table 5.5.6.9-1: Floor Queue Position Request**

| Derivation Path: 24.380 [10], Table 8.2.11-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor participant sending the message.<br><br>Notation in accordance with subclause 5.5.6.1. Codedas specified in IETF RFC 3550 [76] | |
| name | MCPT | | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_A_ID | The MCPTT ID of the floor participant requesting the information. | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |

### 5.5.6.10 Floor Queue Position Info

**Table 5.5.6.10-1: Floor Queue Position Info**

| Derivation Path: 24.380 [10], Table 8.2.12-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| User ID | Not present | | ON-NETWORK |
| User ID | | | OFF-NETWORK |
| User ID | px_MCPTT_User_B_ID | the MCPTT ID of the floor participant sending the Floor Queue Position Info message | |
| SSRC of queued floor participant | Not present | | ON-NETWORK |
| | The SSRC of the message recepient | The SSRC field carries the SSRC of the queued floor participant | OFF-NETWORK |
| Queued User ID | Not present | | ON-NETWORK |
| Queued User ID | | | OFF-NETWORK |
| Queued User ID | px_MCPTT_User_A_ID | the MCPTT ID of the queued floor participant | |
| Queue Info | | | |
| Queue Position Info | "1" | | |
| Queue Priority Level | "0" | | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |
| Floor Indicator | | | |
| Floor Indicator | Any allowed value | | |

### 5.5.6.11 Floor Ack

**Table 5.5.6.11-1: Floor Ack**

| Derivation Path: 24.380 [10], Table 8.2.13-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| Source | | | |
| Source | "2" | The controlling MCPTT function is the source | |
| Message Type | | | |
| Message Type | "10100" | Floor Ack message for Floor Release message which requested acknowledgment | |
| Track Info | Not present | The MCPTT call does not involve a non-controlling MCPTT function | |

### 5.5.6.12 Connect

**Table 5.5.6.12-1: Connect**

| Derivation Path: 24.380 [10], Table 8.3.4-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPC | | |
| MCPTT Session Identity field | | | |
| Session Type | "00000011" | prearranged | |
| MCPTT Session Identity | px_MCPTT_sesson_B_ID | SIP URI, which identifies the MCPTT session between the MCPTT client and the controlling MCPTT function | |
| MCPTT Group Identity field | Not Present | | PRIVATE-CALL |
| MCPTT Group Identity field | | | GROUP-CALL |
| MCPTT Group Identity | px_MCPTT_Group_A_ID | a URI, which identifies the MCPTT group | |
| Media Streams | | | |
| Media Stream field | "1" | 8 bit parameter giving the number of the" m=audio" m-line negotiated in the pre-established session | |
| Control Channel | "2" | 8 bit parameter giving the number of the "m=application" m-line negotiated in the pre-established session | |
| Warning Text field | Not Present | | |
| Answer State field | | | |
| Answer State | "1" | confirmed | |
| Inviting MCPTT User Identity field | | | |
| Inviting MCPTT User Identity | px_MCPTT_User_A_ID | URI, which identifies the inviting MCPTT user | |
| PCK I_MESSAGE field | Not Present | | |

### 5.5.6.13 Disconnect

**Table 5.5.6.13-1: Disconnect**

| Derivation Path: 24.380 [10], Table 8.3.5-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPC | | |
| MCPTT Session Identity field | | | |
| Session Type | "00000011" | prearranged | |
| MCPTT Session Identity | px_MCPTT_sesson_B_ID | | |

### 5.5.6.14 Acknowledgement

**Table 5.5.6.14-1: Acknowledgement**

| Derivation Path: 24.380 [10], Table 8.3.6-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPC | | |
| Reason Code | | | |
| Reason Code | "0" | Accepted | |

### 5.5.6.15 Map Group To Bearer

**Table 5.5.6.15-1: xxx**

| Derivation Path: 24.380 [10], Table 8.4.4-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCMC | | |
| MCPTT Group ID | px_MCPTT_Group_A_ID | The group ID of the call | |
| TMGI | | | |
| MBMS Service ID | "0F0F0F" | The selected value is randomly chosen - a 6 digit hexadecimal number between 000000 and FFFFFF (see TS 23.003 [69] subclause 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 | |
| MBMS Subchannel | | | |
| Audio m-line Number | "1" | The number of the "m=audio" m-line in the SIP MESSAGE request announcing the MBMS bearer | |
| Floor m-line Number | "2" | The number of the "m=application" m-line in the SIP MESSAGE request announcing the MBMS bearer. The <Floor m-line Number> value is set to "0" when the same subchannel is used for media and for floor control. | |
| IP version | "0" | '0' = IP version 4<br>'1' = IP version 6<br>All other values are reserved for future use | |

| Derivation Path: 24.380 [10], Table 8.4.4-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Floor control Port Number | "9" | The port to be used if the<Floor m-line Number> value is greater than '0'. If the <Floor m-line Number> value is equal to '0', the <Floor control Port Number> value is not included in the MBMS Subchannel field | |
| Media Port Number | "9" | | |
| IP Address | "0.0.0.0" | | |

### 5.5.6.16 Unmap Group To Bearer

**Table 5.5.6.16-1: xxx**

| Derivation Path: 24.380 [10], Table 8.4.5-1. | | | |
|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SSRC | The SSRC of the message sender | The SSRC of the floor control server for on-network and floor arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | |
| name | MCPT | | |
| MCPTT Group ID | px_MCPTT_Group_A_ID | The group ID of the call | |

## 5.5.7 Default MCPTT group management messages and other information elements

### 5.5.7.1 MCPTT Group Configuration

The structure of a group configuration document is specified in TS 24.481 [11] clause 7, single MCPTT group configuration parameters are defined in TS 24.483 [13] clause 6.3.

The structure of th configuration document is based on several XML schemas. To distinguish the schemas the prefixes of their corresponding name spaces are used in the the 'Information Element' column as according to table 7.2.2-2 of TS 24.481 [11].

**Table 5.5.7.1-1: MCPTT Group Configuration Defaults**

| Derivation Path: TS 24.481 [11] clause 7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **list-service[1]** | | **Group 1** | | |
| uri attribute | px_MCPTT_Group_A_ID | Value is a "uri" attribute specified in OMA OMA-TS-XDM_Group-V1_1 | TS 24.483 [13] clause 6.2.7 | |
| display-name | px_MCPTT_Group_A_Name | Value is a <display-name> element specified in OMA OMA-TS-XDM_Group-V1_1 | TS 24.483 [13] clause 6.2.8 | |
| list | | | | |
| **entry[1]** | | group member 1 | | |
| uri attribute | px_MCPTT_User_A_ID | Indicates an MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 6.2.11 | |
| display-name | Not present | | | |
| mcpttgi:user-priority | "3" | Indicates the user priority of the MCPTT group member | TS 24.481 [11] TS 24.483 [13] clause 6.2.12 | |
| mcpttgi:participant-type | px_MCPTT_User_A_ParticipantType | Participant type of the MCPTT group | TS 24.483 [13] clause 6.2.13 | |
| **entry[2]** | | group member 2 | | |
| uri attribute | px_MCPTT_User_B_ID | Indicates an MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 6.2.11 | |
| display-name | Not present | | | |
| mcpttgi:user-priority | "2" | Indicates the user priority of the MCPTT group member | TS 24.481 [11] TS 24.483 [13] clause 6.2.12 | |
| mcpttgi:participant-type | px_MCPTT_User_B_ParticipantType | Participant type of the MCPTT group | TS 24.483 [13] clause 6.2.13 | |
| **entry[3]** | | group member 3 | | |
| uri attribute | px_MCPTT_User_C_ID | Indicates an MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 6.2.11 | |
| display-name | Not present | | | |
| mcpttgi:user-priority | "1" | Indicates the user priority of the MCPTT group member | TS 24.481 [11] TS 24.483 [13] clause 6.2.12 | |
| mcpttgi:participant-type | px_MCPTT_User_C_ParticipantType | Participant type of the MCPTT group | TS 24.483 [13] clause 6.2.13 | |
| **cp:ruleset** | | | | |
| cp:rule | | | | |
| cp:id attribute | "rule1" | | | |
| cp:actions | | | | |
| cp:allow-MCPTT-emergency-call | "true" | Indicates whether an MCPTT emergency group call is permitted on the MCPTT group | TS 24.483 [13] clause 6.2.19 | |
| cp:allow-imminent-peril-call | "true" | Indicates whether an MCPTT imminent peril group call is permitted on the MCPTT group | TS 24.483 [13] clause 6.2.20 | |

| Derivation Path: TS 24.481 [11] clause 7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| cp:allow-MCPTT-emergency-alert | "true" | Indicates whether an MCPTT emergency alert is possible on the MCPTT group | TS 24.483 [13] clause 6.2.21 | |
| **mcpttgi**:owner | px_MCPTT_Group_A_Owner_Organization | Group's owner (Mission Critical Organisation). | TS 24.483 [13] clause 6.2.15 | |
| mcpttgi:preferred-voice-encodings | | | | |
| mcpttgi:encoding-list | | | | |
| mcpttgi:name[1] | px_MCPTT_Group_A_preferred_VCodec | Preferred voice codec is a RTP payload. MCPTT clients shall support the AMR-WB codec. | RFC 4566 [27] TS 26.171 [66] TS 24.483 [13] clause 6.2.16 | |
| mcpttgi:level-within-group-hierarchy | "0" | Indicates the level within a group hierarchy (only applicable for group-broadcast group). | TS 24.483 [13] clause 6.2.17 | |
| mcpttgi:level-within-user-hierarchy | "0" | Indicates the level within user hierarchy (only applicable for user-broadcast group). | TS 24.483 [13] clause 6.2.18 | |
| mcpttgi:protect-media | "true" | Indicates whether confidentiality and integrity of media is required on the MCPTT group | TS 24.483 [13] clause 6.2.22 | |
| mcpttgi:protect-floor-control-signalling | "true" | Indicates whether confidentiality and integrity of floor control signalling is required on the MCPTT group | TS 24.483 [13] clause 6.2.23 | |
| mcpttgi:off-network-ProSe-layer-2-group-id | px_Group_A_ProSeLayer2GroupID | Indicates the Prose layer-2 group ID | TS 23.303 [68] TS 24.483 [13] clause 6.2.27 | |
| mcpttgi:off-network-IP-multicast-address | "0.0.0.0" | Indicates the ProSe group IP multicast address;the IP version is implicitly given by the notation of the IP address | TS 23.303 [68] TS 24.483 [13] clause 6.2.28 | |
| mcpttgi:off-network-ProSe-relay-service-code | "123456" | Indicates the connectivity service that the ProSe UE-to-network relay provides to public safety applications | TS 23.303 [68] TS 24.483 [13] clause 6.2.29 | |
| mcpttgi:off-network-in-progress-emergency-state-cancellation-timeout | "PT18H12M15S" | Indicates the timeout value for the cancellation of an in progress emergency for an MCPTT group call. "PT18H12M15S" corresponds to 65535 seconds what is maximum allowed value according to TS 24.483 [13] | TS 24.483 [13] clause 6.2.31 | |

| Derivation Path: TS 24.481 [11] clause 7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcpttgi:off-network-in-progress-imminent-peril-state-cancellation-timeout | "PT18H12M15S" | Indicates the timeout value for the cancellation of an in progress imminent peril for an MCPTT group call. "PT18H12M15S" corresponds to 65535 seconds what is maximum allowed value according to TS 24.483 [13] | TS 24.483 [13] clause 6.2.32 | |
| mcpttgi:off-network-hang-timer | "PT5S" | Indicates the group call hang timer. "PT5S" corresponds to 5 seconds | TS 24.483 [13] clause 6.2.33 | |
| mcpttgi:off-network-maximum-duration | "PT1M" | Indicates the max duration of group calls. "PT1M" corresponds to 1 minute | TS 24.483 [13] clause 6.2.34 | |
| mcpttgi:off-network-queue-usage | "true" | Indicates if queuing is enabled or not | TS 24.483 [13] clause 6.2.34A | |
| mcpttgi:off-network-ProSe-signalling-PPPP | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.36 | |
| mcpttgi:off-network-ProSe-media-PPPP | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.37 | |
| mcpttgi:off-network-ProSe-emergency-call-signalling-PPPP | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.38 | |
| mcpttgi:off-network-ProSe-emergency-call-media-PPPP | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.39 | |
| mcpttgi:off-network-ProSe-imminent-peril-call-signalling-PPPP | "7" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.40 | |
| mcpttgi:off-network-ProSe-imminent-peril-call-media-PPPP | "7" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.41 | |
| **list-service[2]** | | **Group 2** | | |
| uri attribute | px_MCPTT_Group_D_ID | Value is a "uri" attribute specified in OMA OMA-TS-XDM_Group-V1_1 | TS 24.483 [13] clause 6.2.7 | |
| display-name | px_MCPTT_Group_D_Name | Value is a <display-name> element specified in OMA OMA-TS-XDM_Group-V1_1 | TS 24.483 [13] clause 6.2.8 | |
| list | | | | |
| **entry[1]** | | group member 1 | | |
| uri attribute | px_MCPTT_User_A_ID | Indicates an MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 6.2.11 | |
| display-name | Not present | | | |
| mcpttgi:user-priority | "3" | Indicates the user priority of the MCPTT group member | TS 24.481 [11] TS 24.483 [13] clause 6.2.12 | |
| mcpttgi:participant-type | px_MCPTT_User_A_ParticipantType | Participant type of the MCPTT group | TS 24.483 [13] clause 6.2.13 | |
| **entry[2]** | | group member 2 | | |

| Derivation Path: TS 24.481 [11] clause 7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| uri attribute | px_MCPTT_User_B_ID | Indicates an MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 6.2.11 | |
| display-name | Not present | | | |
| mcpttgi:user-priority | "2" | Indicates the user priority of the MCPTT group member | TS 24.481 [11] TS 24.483 [13] clause 6.2.12 | |
| mcpttgi:participant-type | px_MCPTT_User_B_ParticipantType | Participant type of the MCPTT group | TS 24.483 [13] clause 6.2.13 | |
| **cp:ruleset** | | | | |
| cp:rule | | | | |
| cp:id attribute | "rule2" | | | |
| cp:actions | | | | |
| cp:allow-MCPTT-emergency-call | "false" | Indicates whether an MCPTT emergency group call is permitted on the MCPTT group | TS 24.483 [13] clause 6.2.19 | |
| cp:allow-imminent-peril-call | "false" | Indicates whether an MCPTT imminent peril group call is permitted on the MCPTT group | TS 24.483 [13] clause 6.2.20 | |
| cp:allow-MCPTT-emergency-alert | "false" | Indicates whether an MCPTT emergency alert is possible on the MCPTT group | TS 24.483 [13] clause 6.2.21 | |
| **mcpttgi**:owner | px_MCPTT_Group_D_Owner_Organization | Group's owner (Mission Critical Organisation). | TS 24.483 [13] clause 6.2.15 | |
| mcpttgi:preferred-voice-encodings | | | | |
| mcpttgi:encoding-list | | | | |
| mcpttgi:name[1] | px_MCPTT_Group_D_preferred_VCodec | Preferred voice codec is a RTP payload. MCPTT clients shall support the AMR-WB codec. | RFC 4566 [27] TS 26.171 [66] TS 24.483 [13] clause 6.2.16 | |
| mcpttgi:level-within-group-hierarchy | "0" | Indicates the level within a group hierarchy (only applicable for group-broadcast group). | TS 24.483 [13] clause 6.2.17 | |
| mcpttgi:level-within-user-hierarchy | "0" | Indicates the level within user hierarchy (only applicable for user-broadcast group). | TS 24.483 [13] clause 6.2.18 | |
| mcpttgi:protect-media | "true" | Indicates whether confidentiality and integrity of media is required on the MCPTT group | TS 24.483 [13] clause 6.2.22 | |
| mcpttgi:protect-floor-control-signalling | "true" | Indicates whether confidentiality and integrity of floor control signalling is required on the MCPTT group | TS 24.483 [13] clause 6.2.23 | |
| mcpttgi:off-network-ProSe-layer-2-group-id | px_Group_D_ProSeLayer2GroupID | Indicates the Prose layer-2 group ID | TS 23.303 [68] TS 24.483 [13] clause 6.2.27 | |

| Derivation Path: TS 24.481 [11] clause 7 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcpttgi:off-network-IP-multicast-address | "0.0.0.0" | Indicates the ProSe group IP multicast address;the IP version is implicitly given by the notation of the IP address | TS 23.303 [68] TS 24.483 [13] clause 6.2.28 | |
| mcpttgi:off-network-ProSe-relay-service-code | '123456'O | Indicates the connectivity service that the ProSe UE-to-network relay provides to public safety applications | TS 23.303 [68] TS 24.483 [13] clause 6.2.29 | |
| mcpttgi:off-network-in-progress-emergency-state-cancellation-timeout | "PT18H12M15S" | Indicates the timeout value for the cancellation of an in progress emergency for an MCPTT group call. "PT18H12M15S" corresponds to 65535 seconds what is maximum allowed value according to TS 24.483 [13] | TS 24.483 [13] clause 6.2.31 | |
| mcpttgi:off-network-in-progress-imminent-peril-state-cancellation-timeout | "PT18H12M15S" | Indicates the timeout value for the cancellation of an in progress imminent peril for an MCPTT group call. "PT18H12M15S" corresponds to 65535 seconds what is maximum allowed value according to TS 24.483 [13] | TS 24.483 [13] clause 6.2.32 | |
| mcpttgi:off-network-hang-timer | "PT5S" | Indicates the group call hang timer. "PT5S" corresponds to 5 seconds | TS 24.483 [13] clause 6.2.33 | |
| mcpttgi:off-network-maximum-duration | "PT1M" | Indicates the max duration of group calls. "PT1M" corresponds to 1 minute | TS 24.483 [13] clause 6.2.34 | |
| mcpttgi:off-network-queue-usage | "true" | Indicates if queuing is enabled or not | TS 24.483 [13] clause 6.2.34A | |
| mcpttgi:off-network-ProSe-signalling-PPPP | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.36 | |
| mcpttgi:off-network-ProSe-media-PPPP | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.37 | |
| mcpttgi:off-network-ProSe-emergency-call-signalling-PPPP | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.38 | |
| mcpttgi:off-network-ProSe-emergency-call-media-PPPP | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.39 | |
| mcpttgi:off-network-ProSe-imminent-peril-call-signalling-PPPP | "7" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.40 | |
| mcpttgi:off-network-ProSe-imminent-peril-call-media-PPPP | "7" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 24.483 [13] clause 6.2.41 | |

## 5.5.8 Default MCPTT configuration management messages and other information elements

### 5.5.8.1 MCPTT Initial UE Configuration

The structure of a initial UE configuration document is specified in TS 24.484 [14] clause 7.2, single MCPTT group configuration parameters are defined in TS 24.483 [13] clause 8.2.

**Table 5.5.8.1-1: MCPTT Initial UE Configuration Defaults**

| Derivation Path: TS 24.483 [13], subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcptt-UE-initial-configuration | | | | |
| domain attribute | px_MCPTT_User_A_Organization | Mandatory attribute: domain name of the mission critical organization<br><br>Editor's note: to be checked whether px_MCPTT_User_A_Organization is applicable | | |
| **Default-user-profile** | | | | |
| User-ID attribute | px_MCPTT_User_A_ID | Default User Identity | TS 24.483 [13] clause 8.2.6 | |
| user-profile-index attribute | "0" | Values 0-255. Indicates selected user profile | TS 24.483 [13] clause 8.2.7 | |
| **on-network** | | | | |
| **Timers** | | | | |
| T100 | "2" | Values 0-255 sec | TS 24.380 [10] TS 24.483 [13] clause 8.2.11 | |
| T101 | "2" | Values 0-255 sec | TS 24.380 [10] TS 24.483 [13] clause 8.2.12 | |
| T103 | "5" | Values 0-255 sec | TS 24.380 [10] TS 24.483 [13] clause 8.2.13 | |
| T104 | "2" | Values 0-255 sec | TS 24.380 [10] TS 24.483 [13] clause 8.2.14 | |
| T132 | "3" | Values 0-255 sec | TS 24.380 [10] TS 24.483 [13] clause 8.2.15 | |
| **HPLMN** | | | | |
| PLMN attribute | PLMN1 | the PLMN on which the UE is allowed for MCPTT services.<br><br>Public Land Mobile Network is uniquely identified by its PLMN identifier; consists of Mobile Country Code (MCC) and Mobile Network Code (MNC) and are defined by the operator.<br><br>NOTE: PLMN1 shall be the PLMN of the Cell on which the UE is camped during testing. | TS 23.003 [69] TS 24.483 [13] clause 8.2.16 | |
| service | | MCPTT related services on a per HPLMN basis | | |
| MCPTT-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MCPTT service** | TS 24.483 [13] clause 8.2.21 | |
| MC-common-core-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MC common core service** | TS 24.483 [13] clause 8.2.24 | |

| Derivation Path: TS 24.483 [13], subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| MC-ID-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MC identity management service** | TS 24.483 [13] clause 8.2.27 | |
| VPLM[1] | | | | |
| PLMN attribute | PLMN2 | VPLMN configuration for another PLMN which can be used by the UE to access MCPTT service<br><br>NOTE: PLMN2 shall be a different PLMN to PLMN1 of a Cell to which the UE will move during testing when specified in a test case. | | |
| service | | | | |
| MCPTT-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MCPTT service** | TS 24.483 [13] clause 8.2.33 | |
| MC-common-core-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MC common core service** | TS 24.483 [13] clause 8.2.36 | |
| MC-ID-to-con-ref | px_MCPTT_ALL_APN | configuration parameter for establishment of the PDN connection for the **MC identity management service** | TS 24.483 [13] clause 8.2.39 | |
| **App-Server-Info** | | | | |
| idms-auth-endpoint | px_MCPTT_IDMSAuthEndpoint<br><br>Editor's note: Check the relation between px_MCPTT_IDMSAuthEndpoint and px_MCPTT_IdM_Server_URI | Identity management server authorisation endpoint identity information | TS 23.003 [69] TS 24.483 [13] clause 8.2.41 | |
| idms-token-endpoint | px_MCPTT_IDMSTokenEndpoint<br><br>Editor's note: Check the relation between px_MCPTT_IDMSTokenEndpoint and px_MCPTT_IdM_Server_URI | Identity management server token endpoint identity information | TS 23.003 [69] TS 24.483 [13] clause 8.2.41A | |
| http-proxy | HTTP URI with IP address and port of the HTTP proxy | IP address and port used by the UE for the HTTP TCP connection | TS 23.003 [69] TS 24.483 [13] clause 8.2.41B | |
| gms | px_MCPTT_GMS | Indicates the group management server identity information | TS 23.003 [69] TS 24.483 [13] clause 8.2.42 | |
| cms | px_MCPTT_CMS | Indicates the configuration management server identity information | TS 23.003 [69] TS 24.483 [13] clause 8.2.43 | |

| Derivation Path: TS 24.483 [13], subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| kms | px_MCPTT_KMS | Indicates the key management server identity information | TS 23.003 [69] TS 24.483 [13] clause 8.2.44 | |
| tls-tunnel-auth-method | | | | |
| mutual-authentication | "false" | Indicates whether mutual authentication is used for the TLS tunnel authentication false=one-way authentication based on the server certificate is used | TS 24.483 [13] clause 8.2.44B | |
| x509 | Not present | the X.509 certificate for mutual authentication for the TLS tunnel authentication | TS 24.483 [13] clause 8.2.44C | |
| key | Not present | pre-shared key for mutual authentication for the TLS tunnel authentication | TS 24.483 [13] clause 8.2.44D | |
| GMS-URI | px_MCPTT_GMSURI | The group management service URI information which contains the public service identity for performing subscription proxy function of the GMS | TS 23.003 [69] TS 24.483 [13] clause 8.2.9 | |
| group-creation-XUI | px_MCPTT_GroupCreationXUI | Indicates the group creation XUI information for creation of groups | TS 23.003 [69] TS 24.483 [13] clause 8.2.9A | |
| GMS-XCAP-root-URI | px_MCPTT_GMSXCAPRootURI | Indicates the group management server XCAP Root URI information | TS 23.003 [69] TS 24.483 [13] clause 8.2.9B | |
| CMS-XCAP-root-URI | px_MCPTT_CMSXCAPRootURI | Indicates the configuration management server XCAP Root URI information | TS 23.003 [69] TS 24.483 [13] clause 8.2.9C | |
| **integrity-protection-enabled** | "true" | Indicates whether integrity protection is enabled | TS 24.483 [13] clause 8.2.44E | |
| **confidentiality-protection-enabled** | "true" | Indicates whether integrity protection is enabled | TS 24.483 [13] clause 8.2.44F | |
| **off-network** | | | | |
| **Timers** | | | | |
| TFG1 | "150" | Indicates the timer for wait for call announcement; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.47 | |
| TFG2 | "2000" | Indicates the timer for call announcement; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.48 | |
| TFG3 | "40" | Indicates the timer for call probe retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.49 | |
| TFG4 | "20" | Indicates the timer for waiting for the MCPTT user; Values: 0-60 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.50 | |

| Derivation Path: TS 24.483 [13], subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| TFG5 | "2" | Indicates the timer for not present incoming call announcements; Values: 0-255 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.51 | |
| TFG11 | "3000" | Indicates the timer for MCPTT emergency end retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.52 | |
| TFG12 | "3000" | Indicates the timer for MCPTT imminent peril end retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.53 | |
| TFG13 | "1" | Indicates the timer for implicit priority downgrade; Values: 0-255 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.54 | |
| TFG14 | "1" | Indicates the MCPTT timer for implicit priority downgrade (imminent peril); Values: 0-255 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.54A | |
| TFP1 | "2000" | Indicates the timer for private call request retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.55 | |
| TFP2 | "50" | Indicates the timer for waiting for call response message; Values: 0-60 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.56 | |
| TFP3 | "2000" | Indicates the timer for private call release retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.57 | |
| TFP4 | "5000" | Indicates the timer for private call release retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.58 | |
| TFP5 | "30" | Indicates the timer for call release; Values: 0-600 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.59 | |
| TFP6 | "3000" | Indicates the timer for MCPTT emergency private call cancel retransmission; Values: 0-65535 ms | TS 24.379 [9] TS 24.483 [13] clause 8.2.60 | |
| TFP7 | "6" | Indicates the timer for waiting for any message with same call identifier; Values: 0-255 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.61 | |
| TFB1 | "300" | Indicates the timer for max duration; Values: 0-600 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.62 | |
| TFB2 | "10" | Indicates the timer for max duration; Values: 0-10 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.63 | |
| TFB3 | "20" | Indicates the timer for waiting for the MCPTT user; Values: 0-60 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.64 | |
| T201 | "1000" | Indicates the timer for floor request; Values: 0-65535 ms | TS 24.380 [10] TS 24.483 [13] clause 8.2.65 | |
| T203 | "5" | Indicates the timer for end of RTP media; Values: 0-255 s | TS 24.380 [10] TS 24.483 [13] clause 8.2.66 | |

| Derivation Path: TS 24.483 [13], subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| T204 | "5" | Indicates the timer for floor queue position request; Values: 0-255 s | TS 24.380 [10] TS 24.483 [13] clause 8.2.67 | |
| T205 | "1" | Indicates the timer for floor granted request; Values: 0-255 s | TS 24.380 [10] TS 24.483 [13] clause 8.2.68 | |
| T230 | "10" | Indicates the timer for inactivity; Values: 0-255 s | TS 24.380 [10] | |
| T233 | "10" | Indicates the timer for pending user action; Values: 0-255 s | TS 24.380 [10] TS 24.483 [13] clause 8.2.70 | |
| TFE1 | "30" | Indicates the timer for MCPTT emergency alert; Values: 0-65535 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.71 | |
| TFE2 | "10" | Indicates the timer for MCPTT emergency alert re-transmission; Values: 0-10 s | TS 24.379 [9] TS 24.483 [13] clause 8.2.72 | |
| **Counters** | | | | |
| CFP1 | "3" | Indicates the counter for private call request retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.74 | |
| CFP3 | "5" | Indicates the counter for private call release retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.75 | |
| CFP4 | "2" | Indicates the counter for private call accept retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.76 | |
| CFP6 | "2" | Indicates the counter for private call accept retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.77 | |
| CFP11 | "2" | Indicates the counter for MCPTT group call emergency end retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.78 | |
| CFP12 | "2" | Indicates the counter for MCPTT imminent peril call emergency end retransmission | TS 24.379 [9] TS 24.483 [13] clause 8.2.79 | |
| C201 | "3" | Indicates the counter for floor request | TS 24.379 [9] TS 24.483 [13] clause 8.2.80 | |
| C204 | "2" | Indicates the counter for floor queue position request | TS 24.379 [9] TS 24.483 [13] clause 8.2.81 | |
| C205 | "4" | Indicates the counter for floor granted request | TS 24.379 [9] TS 24.483 [13] clause 8.2.82 | |

### 5.5.8.2 MCPTT UE Configuration

The structure of a group configuration document is specified in TS 24.484 [14] clause 8.2, single MCPTT group configuration parameters are defined in TS 24.483 [13] clause 4.2.

**Table 5.5.8.2-1: MCPTT UE Configuration Defaults**

| Derivation Path: TS 24.484 [14] subclause 8.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcptt-UE-configuration | | | | |
| domain attribute | px_MCPTT_User_A_Organization | Mandatory attribute: domain name of the mission critical organization<br><br>Editor's note: to be checked whether px_MCPTT_User_A_Organization is applicable | | |
| **common** | | | | |
| private-call | | | | |
| Max-Simul-Call-N10 | "2" | Indicates the maximum number of private calls | TS 24.483 [13] clause 4.2.7 | |
| MCPTT-Group-Call | | | | |
| Max-Simul-Call-N4 | "3" | Indicates the maximum number of simultaneous group calls | TS 24.483 [13] clause 4.2.9 | |
| Max-Simul-Trans-N5 | "5" | Indicates the maximum number of transmissions in a group | TS 24.483 [13] clause 4.2.10 | |
| Prioritized-MCPTT-Group | | | | |
| MCPTT-Group-Priority[1] | | | | |
| MCPTT-Group-ID | px_MCPTT_Group_A_ID | Value is a "uri" attribute specified in OMA OMA-TS-XDM_Group-V1_1 that indicates the group id. | TS 24.483 [13] clause 4.2.13 | |
| group-priority-hierarchy | "7" | Indicates the requested presentation priority of group call; Values: 0-7 "7"=the top priority among groups | TS 24.483 [13] clause 4.2.14 | |
| **on-network** | | | | |
| IPv6Preferred | "false" | Indicates whether IPv6 is preferred over IPv4 for on-network operation when the MCPTT UE has both IPv4 and IPv6 host configuration. | TS 24.483 [13] clause 4.2.17 | |
| Relay-Service | "true" | Indicates the authorisation to use a relay service | TS 24.483 [13] clause 4.2.16 | |
| Relayed-MCPTT-Group[1] | | | | |
| MCPTT-Group-ID | px_MCPTT_Group_A_ID | One allowed relayed MCPTT group | TS 24.483 [13] clause 4.2.20 | |
| Relay-Service-Code | "123456" | Identifies a connectivity service the ProSe UE-to-Network Relay provides to Public Safety applications; 24-bit value | TS 23.303 [68] TS 24.483 [13] clause 4.2.21 | |

### 5.5.8.3 MCPTT User Profile

The structure of a user profile document is specified in TS 24.484 [14] clause 8.3, single MCPTT group configuration parameters are defined in TS 24.483 [13] clause 5.2.

The structure of th configuration document is based on the XML Schema in clause 8.3.2.3 of TS 24.484 [14] and XML "ruleset" schema according to IETF RFC 4745 [103]. To distinguish the schemas the prefix "cp" ("common policy") is used for the ruleset.

**Table 5.5.8.3-1: MCPTT User Profile Defaults**

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| mcptt-user-profile | | | | |
| XUI-URI attribute | px_MCPTT_User_XUI_URI | | | |
| user-profile-index attribute | "0" | | | |
| Status | true | MCPTT user profile is enabled | | |
| ProfileName | px_MCPTT_User_A_Profile_Name | Profile name for the MCPTT user | TS 24.483 [13] clause 5.2.7B | |
| Pre-selected-indication | not present | Editor's note: There seems to be no use to specify this | TS 23.179 [8] | |
| **Common** | | | | |
| index attribute | "0" | Index for the particular MCPTT user profile | | |
| MCPTTUserID | | | | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_User_A_ID | MCPTT user identity (MCPTT ID) which is a globally unique identifier within the MCPTT service that represents the MCPTT user | TS 24.483 [13] clause 5.2.7 | |
| UserAlias | px_MCPTT_User_A_Alias | Alphanumeric aliases of MCPTT user | TS 24.483 [13] clause 5.2.8 | |
| ParticipantType | px_MCPTT_User_A_ParticipantType | Participant type of the MCPTT user | TS 24.483 [13] clause 5.2.10 | |
| MissionCriticalOrganization | px_MCPTT_User_A_Organization | Indicates the organization an MCPTT user belongs to | TS 24.483 [13] clause 5.2.11 | |
| **PrivateCall** | | | | |
| PrivateCallList | | | | |
| PrivateCallURI[1] | | | | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_User_B_ID | MCPTT user(s) who can be called in a MCPTT private call | TS 24.483 [13] clause 5.2.17 | |
| display-name | "User B Name" | a human readable name for this User | TS 24.483 [13] clause 5.2.18 | |
| PrivateCallURI[2] | | | | |
| index attribute | "1" | | | |
| uri-entry | px_MCPTT_User_C_ID | MCPTT user(s) who can be called in a MCPTT private call | TS 24.483 [13] clause 5.2.17 | |
| display-name | "User C Name" | a human readable name for this User | TS 24.483 [13] clause 5.2.18 | |
| PrivateCallProSeUser[1] | | | | |
| index attribute | "0" | | | |
| DiscoveryGroupID | "1234" | Discovery group ID in the ProSe discovery procedures | TS 23.303 [68] TS 24.483 [13] clause 5.2.19 | |
| User-Info-ID | "5555" | Prose user Info ID in the ProSe discovery procedures | TS 23.303 [68] TS 24.483 [13] clause 5.2.19A | |
| PrivateCallProSeUser[2] | | | | |
| index attribute | "1" | | | |
| DiscoveryGroupID | "1234" | Discovery group ID in the ProSe discovery procedures | TS 23.303 [68] TS 24.483 [13] clause 5.2.19 | |
| User-Info-ID | "6666" | Prose user Info ID in the ProSe discovery procedures | TS 23.303 [68] TS 24.483 [13] clause 5.2.19A | |
| EmergencyCall | | | | |
| MCPTTPrivateRecipient | | | | |
| entry | | | | |

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| entry-info attribute | "UsePreConfigured" | Indicates the criteria to determine when initiation of an MCPTT emergency private call uses the MCPTT private recipient ID. | TS 24.484 [14] clause 8.3.2.7 TS 24.483 [13] clause 5.2.29F | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_User_B_ID | The MCPTT private recipient for an MCPTT emergency private call | TS 24.483 [13] clause 5.2.29B | |
| display-name | "User B Name" | a human readable name for this User | TS 24.483 [13] clause 5.2.29E | |
| ProSeUserID-entry | | | | |
| index attribute | "0" | | | |
| DiscoveryGroupID | "1234" | Discovery group ID in the ProSe discovery procedures | TS 24.483 [13] clause 5.2.29C | |
| User-Info-ID | "5555" | ProSe user Info ID in the ProSe discovery procedures | TS 24.483 [13] clause 5.2.29D | |
| **MCPTT-group-call** | | | | |
| MaxSimultaneousCallsN6 | "3" | Indicates the maximum number of simultaneously received MCPTT group calls | TS 24.483 [13] clause 5.2.31 | |
| EmergencyCall | | | | |
| MCPTTGroupInitiation | | | | |
| entry | | | | |
| entry-info attribute | "UseCurrentlySelected Group" | Use currently selected MCPTT group for an on-network MCPTT emergency group call | TS 24.484 [14] clause 8.3.2.7 TS 24.483 [13] clause 5.2.34D | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_Group_A_ID | The group used upon certain criteria on initiation of an MCPTT emergency group call | TS 24.483 [13] clause 5.2.34B | |
| display-name | px_MCPTT_Group_A_Name | The display name for group used for emergency | TS 24.483 [13] clause 5.2.34C | |
| ImminentPerilCall | | | | |
| MCPTTGroupInitiation | | | | |
| entry | | | | |
| entry-info attribute | "UseCurrentlySelected Group" | Use currently selected MCPTT group for an on-network MCPTT imminent peril group call | TS 24.484 [14] clause 8.3.2.7 TS 24.483 [13] clause 5.2.39D | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_Group_A_ID | the group used on initiation of an MCPTT imminent peril group call. | TS 24.483 [13] clause 5.2.39B | |
| display-name | px_MCPTT_Group_A_Name | display name for group used for the imminent peril call | TS 24.483 [13] clause 5.2.39C | |
| EmergencyAlert | | | | |
| MCPTTGroupInitiation | | | | |
| entry | | | | |
| index attribute | "0" | | | |
| entry-info attribute | "UseCurrentlySelected Group" | Use currently selected MCPTT group for emergency alert | TS 24.484 [14] clause 8.3.2.7 TS 24.483 [13] clause 5.2.43E | |

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| uri-entry | px_MCPTT_Group_A_ID | Indicates the MCPTT group used upon certain criteria on initiation of an MCPTT emergency alert. | TS 24.483 [13] clause 5.2.43B | |
| display-name | px_MCPTT_Group_A_Name | Optional; name of emergency alert group | TS 24.483 [13] clause 5.2.43D | |
| Priority | "10" | Indicates the priority of the MCPTT group calls, 0-255 | TS 24.483 [13] clause 5.2.43F | |
| **OffNetwork** | | | | |
| index attribute | "0" | | | |
| MCPTTGroupInfo | | | | |
| entry[1] | | | | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_Group_A_ID | Indicates an off-network MCPTT group for use by an MCPTT user | TS 24.483 [13] clause 5.2.53 | |
| display-name | px_MCPTT_Group_A_Name | The display name corresponding to off-network group id | TS 24.483 [13] clause 5.2.53A | |
| User-Info-ID | "5555" | ProSe user info ID | TS 23.303 [68] TS 24.483 [13] clause 5.2.58 | |
| **OnNetwork** | | | | |
| index attribute | "0" | | | |
| MCPTTGroupInfo | | | | |
| entry[1] | | Group 1 the MCPTT user is allowed to affiliate to | | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_Group_A_ID | The MCPTT group ID for the on-network MCPTT group that the MCPTT user is allowed to affiliate to. | TS 24.483 [13] clause 5.2.48B4 | |
| display-name | px_MCPTT_Group_A_Name | The display name for the group | TS 24.483 [13] clause 5.2.48B5 | |
| entry[2] | | Group 2 the MCPTT user is allowed to affiliate to | | |
| index attribute | "1" | | | |
| uri-entry | px_MCPTT_Group_D_ID | The MCPTT group ID for the on-network MCPTT group that the MCPTT user is allowed to affiliate to. | TS 24.483 [13] clause 5.2.48B4 | |
| display-name | px_MCPTT_Group_D_Name | The display name for the group | TS 24.483 [13] clause 5.2.48B5 | |
| MaxAffiliationsN2 | 20 | | | |
| MaxSimultaneousTransmissionsN7 | 20 | | | |
| ImplicitAffiliations | | Group 1 the MCPTT user is implicitly affiliated to | | |
| entry | | | | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_Group_A_ID | indicates a MCPTT group ID to which the MCPTT user is implicitly affiliated to | TS 24.483 [13] clause 5.2.48C4 | |

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| display-name | px_MCPTT_Group_A_Name | display name for implicitly affiliated group | TS 24.483 [13] clause 5.2.48C5 | |
| PrivateEmergencyAlert | | | | |
| entry | | | | |
| entry-info attribute | "UsePreConfigured" | Indicates the criteria to determine when initiation of an MCPTT emergency private call uses the MCPTT private recipient ID. | TS 24.483 [13] clause 5.2.48O | |
| index attribute | "0" | | | |
| uri-entry | px_MCPTT_User_B_ID | Indicates the default MCPTT user ID to be used upon certain criteria on initiation of an MCPTT private emergency alert for on-network | TS 24.483 [13] clause 5.2.48M | |
| display-name | px_MCPTT_User_A_Alias | The display name corresponding to private emergency call id | TS 24.483 [13] clause 5.2.48N | |
| **cp:ruleset** | | | | |
| cp:rule | | | | |
| cp:id attribute | "rule1" | | | |
| cp:actions | | | | |
| allow-create-delete-user-alias | "false" | Indicates authorisation to create and delete aliases of other MCPTT users | TS 24.483 [13] clause 5.2.9 | |
| allow-private-call | "true" | Indicates the authorisation to make a MCPTT private call | TS 24.483 [13] clause 5.2.13 | |
| allow-private-call-to-any-user | "true" | indicates the authorisation to make a MCPTT private call to any MCPTT user | TS 24.483 [13] clause 5.2.14 | |
| allow-manual-commencement | "true" | Indicates the authorisation to make a MCPTT private call with manual commencement | TS 24.483 [13] clause 5.2.20 | |
| allow-automatic-commencement | "true" | Indicates the authorisation to make a MCPTT private call with automatic commencement | TS 24.483 [13] clause 5.2.21 | |
| allow-force-auto-answer | "true" | Indicates the authorisation of MCPTT user to force automatic answer for a MCPTT private call | TS 24.483 [13] clause 5.2.22 | |
| allow-failure-restriction | "false" | Indicates the authorisation to restrict the provision of a notification of call failure reason for a MCPTT private call | TS 24.483 [13] clause 5.2.23 | |
| allow-private-call-media-protection | "true" | Indicates authorisation to protect confidentiality and integrity of media for MCPTT private calls | TS 24.483 [13] clause 5.2.24 | |

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| allow-private-call-floor-control-protection | "true" | Indicates authorisation to protect confidentiality and integrity of floor control signalling for MCPTT private calls. | TS 24.483 [13] clause 5.2.25 | |
| allow-emergency-private-call | "true" | Indicates the authorisation to make an MCPTT emergency private call. | TS 24.483 [13] clause 5.2.27 | |
| allow-cancel-private-emergency-call | "true" | Indicates the authorisation to cancel emergency priority in an MCPTT emergency private call by an authorised MCPTT user | TS 24.483 [13] clause 5.2.28 | |
| allow-emergency-group-call | "true" | Indicates the authorisation to make an MCPTT emergency group call functionality enabled for MCPTT user | TS 24.483 [13] clause 5.2.33 | |
| allow-cancel-group-emergency | "true" | Indicates the authorisation to cancel an in progress MCPTT emergency call associated with a group. | TS 24.483 [13] clause 5.2.35 | |
| allow-imminent-peril-call | "true" | Indicates the authorisation to make an Imminent Peril group call | TS 24.483 [13] clause 5.2.37 | |
| allow-cancel-imminent-peril | "true" | Indicates the authorisation for in-progress MCPTT imminent peril cancelation | TS 24.483 [13] clause 5.2.38 | |
| allow-activate-emergency-alert | "true" | Indicates the authorisation to activate an MCPTT emergency alert | TS 24.483 [13] clause 5.2.41 | |
| allow-cancel-emergency-alert | "true" | Indicates the authorisation to cancel an MCPTT emergency alert | TS 24.483 [13] clause 5.2.42 | |
| allow-create-group-broadcast-group | "true" | Indicates the authorisation to create a group-broadcast group. | TS 24.483 [13] clause 5.2.46 | |
| allow-create-user-broadcast-group | "true" | Indicates the authorisation to create a user-broadcast group | TS 24.483 [13] clause 5.2.48 | |
| allow-offnetwork | "true" | Indicates the authorisation for off-network services | TS 24.483 [13] clause 5.2.50 | |
| allow-listen-both-overriding-and-overridden | "false" | Indicates whether the MCPTT user is allowed to listen both overriding and override | TS 24.483 [13] clause 5.2.54 | |
| allow-transmit-during-override | "false" | Indicates whether the MCPTT user is allowed to transmit in case of override (overriding and/or overridden) | TS 24.483 [13] clause 5.2.55 | |

| Derivation Path: | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| allow-off-network-group-call-change-to-emergency | "true" | Indicates the authorisation for a participant to change an off-network group call in-progress to an off-network MCPTT emergency group call | TS 24.483 [13] clause 5.2.56 | |
| allow-imminent-peril-change | "true" | Indicates the authorisation for a participant to change an off-network group call in-progress to an off-network MCPTT imminent peril group call | TS 24.483 [13] clause 5.2.57 | |
| allow-regroup | "true" | Indicates whether the MCPTT user is authorised to perform dynamic regrouping operations | TS 24.483 [13] clause 5.2.48D | |
| allow-presence-status | "true" | Indicates the presence status on the network of this MCPTT user is available | TS 24.483 [13] clause 5.2.48E | |
| allow-request-presence | "true" | Indicates whether the MCPTT user is authorised to obtain whether a particular MCPTT User is present on the network | TS 24.483 [13] clause 5.2.48F | |
| allow-private-call-participation | "true" | Indicates whether the MCPTT user is allowed to participate in MCPTT private calls that they are invited to | TS 24.483 [13] clause 5.2.48G | |
| allow-override-of-transmission | "true" | Indicates whether the MCPTT user is authorised to override transmission in a MCPTT private call | TS 24.483 [13] clause 5.2.48H | |
| allow-manual-off-network-switch | "true" | Indicates whether the MCPTT user is authorised to manually switch to off-network operation while in on-network operation | TS 24.483 [13] clause 5.2.48I | |

#### 5.5.8.4 MCPTT Service Configuration

The structure of a user profile document is specified in TS 24.484 [14] clause 8.4, single MCPTT group configuration parameters are defined in TS 24.483 [13] clause 7.2.

**Table 5.5.8.4-1: MCPTT Service Configuration Defaults**

| Derivation Path: TS 24.483 [13], subclause 7.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| service configuration | | | | |
| domain attribute | px_MCPTT_User_A_Organization | Mandatory attribute: domain name of the mission critical organization<br><br>Editor's note: to be checked whether px_MCPTT_User_C_Organization is applicable | | |
| common | | | | |
| min-length-alias | "2" | Indicates minimum length of an alphanumeric identifier (i.e., alias) | TS 24.483 [13] clause 7.2.9 | |
| broadcast-group | | | | |
| num-levels-group-hierarchy | "1" | Indicates the number of levels of group hierarchy for group-broadcast groups | TS 24.483 [13] clause 7.2.7 | |
| num-levels-user-hierarchy | "1" | Indicates the number of levels of user hierarchy for user-broadcast groups | TS 24.483 [13] clause 7.2.8 | |
| off-network | | | | |
| emergency-call | | | | |
| private-cancel-timeout | "PT5S" | 5 seconds; Indicates timeout value for the cancellation of an in progress emergency for an MCPTT private call. Values: : 0-65535 s | TS 24.483 [13] clause 7.2.14 | |
| group-time-limit | "PT5S" | 5 seconds; Indicates time limit for an in progress MCPTT emergency call related to an MCPTT group. Values: 0-65535 s | TS 24.483 [13] clause 7.2.16 | |
| private-call | | | | |
| hang-time | "PT5S" | 5 seconds; Indicates hang timer for private calls (with floor control). Values: 0-65535 s | TS 24.483 [13] clause 7.2.13 | |
| max-duration-with-floor-control | "PT60S" | 60 seconds; Indicates max private call (with floor control) duration. Values: 0-65535 s | TS 24.483 [13] clause 7.2.12 | |
| num-levels-priority-hierarchy | "4" | Indicates the number of levels of hierarchy for floor control override in off-network. Values: 4-256 | TS 24.483 [13] clause 7.2.17 | |
| transmit-time | | | | |
| time-limit | "PT60S" | 60 seconds; Indicates transmit time limit from a single request to transmit in a group or private call. Values: 0-65535 s | TS 24.483 [13] clause 7.2.18 | |

| Derivation Path: TS 24.483 [13], subclause 7.2 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| time-warning | "PT50S" | 50 seconds; Indicates configuration of warning time before time limit of transmission is reached (off-network). Values: 0-255 s | TS 24.483 [13] clause 7.2.19 | |
| hang-time-warning | "PT4S" | 4 seconds; Indicates configuration of warning time before hang time is reached (off-network). Values: Values: 0-255 s | TS 24.483 [13] clause 7.2.20 | |
| default-prose-per-packet-priority | | | | |
| mcptt-private-call-signalling | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 23.303 [68] TS 24.483 [13] clause 7.2.22 | |
| mcptt-private-call-media | "1" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 23.303 [68] TS 24.483 [13] clause 7.2.23 | |
| mcptt-emergency-private-call-signalling | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 23.303 [68] TS 24.483 [13] clause 7.2.24 | |
| mcptt-emergency-private-call-media | "8" | Indicates the default ProSe Per-Packet Priority (PPPP) value | TS 23.303 [68] TS 24.483 [13] clause 7.2.25 | |
| allow-log-metadata | "true" | Indicates whether an MCPTT emergency group call is permitted on the MCPTT group | TS 24.483 [13] clause 7.2.26 | |

## 5.5.9 Default miscellaneous messages and other information elements

### 5.5.9.1 MIKEY-SAKKE I_MESSAGE

- CSK distribution

**Table 5.5.9.1-1: MIKEY-SAKKE I_MESSAGE (CSK distribution by the UE)**

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| MIKEY Common Header { | Any | | |
| version | '00000001'B | | |
| Data Type | '00011010'B | SAKKE msg (26) | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| V | '0'B | | |
| PRF func | '0000001'B | PRF-HMAC-SHA-256 | |
| CSB ID | Any value but 4 most significant bits set to '0010'B | 32 bit CSK-ID: the 4 most significant bits indicate the purpose of the key, the other 28-bits shall be randomly generated (TS 33.180 [94] clause 5.2.2 and E.6.11) | |
| #CS | '00000001'B or '00000000'B | Number of crypto sessions in the CS ID map info: if #CS is 0 the default security policies shall be applied (TS 33.180 [94] E.1.2) | |
| CS ID map type | 2 if #CS > 0 | GENERIC-ID | |
| | 1 if #CS == 0 | empty map | |
| CS ID map info { | Present only if #CS > 0 | | |
| CS ID | '00000110'B | CS ID of the crypto session: '6' for CSK use within MCPTT (TS 33.180 [94] E.4.2) Editor's note: value to be confirmed | |
| Prot type | 0 | SRTP the security protocol to be used for the crypto session | |
| S | Any value | S flag to indicate whether the ROC and SEQ fields are provided ('1') or if they are omitted ('0') | |
| #P | 1 | the number of security policies provided for the crypto session | |
| Ps { | | lists the policies for the crypto session | |
| Policy_no_1 | Any value | a policy_no that corresponds to the policy_no of a SP payload | |
| } | | | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| Session Data Length | Length of Session Data (in bytes) | 16 bits the length of Session Data (in bytes). For the Prot type SRTP, Session Data MAY be omitted in the initial message (length = 0), but it MUST be provided in the response message. | |
| Session Data { | Present if Session Data Length > 0 | session data for the crypto session | |
| SSRC | Any value | specifies the SSRC that MUST be used for the crypto session | |
| ROC | Any value if S flag is set, not present otherwise | current/initial rollover counter. If the session has not started, this field is set to '0' | |
| SEQ | Any value if S flag is set, not present otherwise | current/initial sequence number | |
| } | | | |
| SPI Length | Length of the SPI | SPI MAY be omitted in the initial message (length = 0), but it has to be provided in the response message | |
| SPI | Any value if present | the SPI (or MKI) corresponding to the session key to (initially) be used for the crypto session. Other keys can be used. | |
| } | | | |
| } | | | |
| Timestamp Payload (T) { | | Addressed by '00000101'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| TS Type | ‘00000000’B | NTP-UTC (0): 64-bits | |
| TS Value | Any value | 64bit UTC value representing the number of seconds since 0h on 1 January 1900 with respect to the Coordinated Universal Time (UTC) | |
| } | | | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| RAND Payload { | | Addressed by '00001011'B in the 'Next payload' field of the previous payload | |
| Next payload | '00001110'B | | |
| RAND len | '00010000'B | At least 16 Bytes | |
| RAND | 128-bit random number | 128-bit random number | |
| } | | | |
| IDRi payload { | | Addressed by '00001110'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| ID Role | 1 | Initiator (IDRi) | |
| ID Type | 1 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_User_A_ID | MCPTT ID See TS 33.180 [94] clause E.4.1 | |
| | px_MCVideo_User_A_ID | MCVideo ID See TS 33.180 [94] clause E.4.1 | MCVIDEO |
| | px_MCData_User_A_ID | MCData ID See TS 33.180 [94] clause E.4.1 | MCDATA |
| } | | | |
| IDRr payload { | | Addressed by '00001110'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| ID Role | 2 | Responder (IDRr) | |
| ID Type | 1 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_Server_A_URI | MDSI of the MCPTT Domain | |
| | px_MCVideo_Server_A_URI | MDSI of the MCVideo Domain | MCVIDEO |
| | px_MCData_Server_A_URI | MDSI of the MCData Domain | MCDATA |
| } | | | |
| IDRkmsi payload { | | Addressed by '00001110'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| ID Role | 6 | Initiator's KMS (IDRkmsi) | |
| ID Type | 1 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the initiating user | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the initiating user | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the initiating user | MCDATA |
| } | | | |
| IDRkmsr payload { | | Addressed by '00001110'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| ID Role | 7 | Responder's KMS (IDRkmsr) | |
| ID Type | 1 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the terminating user | |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the terminating user | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the terminating user | MCDATA |
| } | | Addressed by '00001010'B in the 'Next payload' field of the previous payload | |
| Security Properties payload { | Present if #CS > 0 | If not present (#CS == 0) then the default security profile defined in Annex E.4.2 of TS 33.180 [94] shall be used | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| Policy no | same as Policy_no_1 in the CS ID map info of the header payload | | |
| Prot type | 0 | SRTP | |
| Policy param length | | | |
| Policy param { | | | |
| { | | | |
| Type | 0 | Encryption Algorithm | |
| length | | | |
| value | 6 | AES-GCM | |
| } | | | |
| { | | | |
| Type | 1 | Session encryption key length | |
| length | | | |
| value | 16 | 16 octets | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| } | | | |
| { | | | |
| Type | 4 | Session salt key length | |
| length | | | |
| value | 12 | 12 octets | |
| } | | | |
| { | | | |
| Type | 5 | SRTP PRF | |
| length | | | |
| value | 0 | AES-CM | |
| } | | | |
| { | | | |
| Type | 6 | Key derivation rate | |
| length | | | |
| value | 0 | No session key refresh. | |
| } | | | |
| { | | | |
| Type | 13 | ROC transmission rate | |
| length | | | |
| value | 1 | ROC transmitted in every packet. | |
| } | | | |
| { | | | |
| Type | 18 | SRTP Authentication tag length | |
| length | | | |
| value | 4 | 4 octets for transmission of ROC | |
| } | | | |
| { | | | |
| Type | 19 | SRTCP Authentication tag length | |
| length | | | |
| value | 0 | ROC need not be transmitted in SRTCP. | |
| } | | | |
| { | | | |
| Type | 20 | AEAD authentication tag length | |
| length | | | |
| value | 16 | 16 octets | |
| } | | | |
| } | | | |
| } | | | |
| SAKKE payload { | | Addressed by '00011010'B in the 'Next payload' field of the previous payload | |
| Next payload | Identifier for the next payload (NOTE 1) | | |
| SAKKE params { | 1 | Parameter Set 1 according to RFC 6509 [23], Appendix A | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| ID scheme | 2 | '3GPP MCX hashed UID' (33.180 [94] E.1.2) | |
| SAKKE data length | Length of SAKKE data (in bytes) | | |
| ..SAKKE data | Encapsulated CSK | The CSK is encapsulated by using the public key (PubEncKey in KMS Certificate) and the UID generated from the MDSI of the MCX Domain (provided in IDRr) | |
| } | | | |
| SIGN (ECCSI) payload { | | Addressed by '00000100'B in the 'Next payload' field of the previous payload | |
| Next payload | ‘00000000’B | This is the last payload | |
| S type | 2 | ECCSI signature | |
| S data | Signature: Shall be validated by the SS | The signature shall be validated according to RFC 3830 [24] clause 5.3 using the algorithm according to RFC 6507 [98] clause 5.2.2 using the UID generated from the MC Service user ID associated with the initiating user (provided in IDRi payload). | |
| } | | | |
| NOTE 1: MIKEY payloads may occur in any order apart from the header payload which is always the first payload and the signature payload which is always the last payload | | | |

Editor’s note: A further table may be needed for CSK download by the SS

- Private call

**Table 5.5.9.1-2: MIKEY-SAKKE I_MESSAGE (Private call)**

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| **MIKEY Common Header {** | Any | | |
| version | ‘00000001’B | | |
| Data Type | ‘00011010’B | SAKKE msg (26) | |
| Next payload | ‘00000101’B | Next payload is timestamp | |
| V | ‘0’B | | |
| PRF func | ‘0000001’B | PRF-HMAC-SHA-256 | |
| CSB ID | '0001xxxx ... xxxxxxxx'B | 32-bit PCK-ID The 4 most significant bits of the PCK-ID indicate the purpose of the PCK is to protect Private call communications, the other 28-bits are randomly generated | |
| #CS | ‘00000001’B | the number of crypto sessions in the CS ID map info. | |
| CS ID map type | 2 | GENERIC-ID | |
| CS ID map Info { | | | |
| CS ID | ‘00000010’B | the CS ID of the crypto session | |
| Prot type | 0 | the security protocol to be used for the crypto session | |
| S | 1 | the ROC and SEQ fields are provided | |
| #P | 1 | the number of security policies provided for the crypto session | |
| Ps { | | lists the policies for the crypto session | |
| Policy_no_1 | '00000001'B | a policy_no that corresponds to the policy_no of a SP payload | |
| } | | | |
| Session Data Length | Length of Session Data (in bytes) | 16 bits the length of Session Data (in bytes). For the Prot type SRTP, Session Data MAY be omitted in the initial message (length = 0), but it MUST be provided in the response message. | |
| Session Data { | | session data for the crypto session | |
| SSRC | FFS | specifies the SSRC that MUST be used for the crypto session | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| ROC | FFS | current/initial rollover counter. If the session has not started, this field is set to '0' | |
| SEQ | FFS | current/initial sequence number | |
| } | | | |
| SPI Length | Length of the SPI | SPI MAY be omitted in the initial message (length = 0), but it MUST be provided in the response message | |
| SPI | FFS | the SPI (or MKI) corresponding to the session key to (initially) be used for the crypto session. Other keys can be used. | |
| } | | | |
| } | | | |
| **Timestamp Payload (T) {** | | | |
| Next payload | ‘00001011’B | Next payload is RAND | |
| TS Type | ‘00000000’B | NTP-UTC (0): 64-bits | |
| TS Value | FFS | 64bit UTC value representing the number of seconds since 0h on 1 January 1900 with respect to the Coordinated Universal Time (UTC) | |
| } | | | |
| **RAND Payload {** | | | |
| Next payload | ‘00001110’B | Next payload is IDRi | |
| RAND len | ‘00010000’B | 16 Bytes RAND | |
| RAND | 128-bit random number | | |
| } | | | |
| **IDRi payload {** | | | |
| Next payload | ‘00001110’B | Next payload is IDRi | |
| ID Role | 1 | Initiator (IDRi) | |
| ID Type | 0 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_User_A_ID | MCPTT ID associated with the initiating user | |
| | px_MCVideo_User_A_ID | MCVideo ID See TS 33.180 [94] clause E.4.1 | MCVIDEO |
| | px_MCData_User_A_ID | MCData ID See TS 33.180 [94] clause E.4.1 | MCDATA |
| } | | | |
| IDRr payload { | | | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| Next payload | '00001110'B | Next payload is IDRkmsi | |
| ID Role | 2 | Responder (IDRr) | |
| ID Type | 0 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_User_B_ID | MCPTT ID associated to the receiving user | |
| | px_MCVideo_User_B_ID | MDSI of the MCVideo Domain | MCVIDEO |
| | px_MCData_User_B_ID | MDSI of the MCData Domain | MCDATA |
| } | | | |
| **IDRkmsi payload {** | | | |
| Next payload | '00001110'B | Next payload is IDRkmsr | |
| ID Role | 6 | Initiator's KMS (IDRkmsi) | |
| ID Type | 0 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the initiating user | |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the initiating user | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the initiating user | MCDATA |
| } | | | |
| **IDRkmsr payload {** | | | |
| Next payload | '00001010'B | Next payload is Security Properties | |
| ID Role | 7 | Responder's KMS (IDRkmsr) | |
| ID Type | 0 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the terminating user | |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the terminating user | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the terminating user | MCDATA |
| } | | | |
| Security Properties payload { | | If not present (#CS == 0) then the default security profile defined in Annex E.4.2 of TS 33.180 [94] shall be used | |
| Next payload | '00011010'B | Next payload is SAKKE (26) | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| Policy no | '00000001'B | Random nr | |
| Prot type | 0 | SRTP | |
| Policy param length | | | |
| Policy param { | | | |
| { | | | |
| Type | 0 | Encryption Algorithm | |
| length | | | |
| value | 6 | AES-GCM | |
| } | | | |
| { | | | |
| Type | 1 | Session encryption key length | |
| length | | | |
| value | 16 | 16 octets | |
| } | | | |
| { | | | |
| Type | 4 | Session salt key length | |
| length | | | |
| value | 12 | 12 octets | |
| } | | | |
| { | | | |
| Type | 5 | SRTP PRF | |
| length | | | |
| value | 0 | AES-CM | |
| } | | | |
| { | | | |
| Type | 6 | Key derivation rate | |
| length | | | |
| value | 0 | No session key refresh. | |
| } | | | |
| { | | | |
| Type | 20 | AEAD authentication tag length | |
| length | | | |
| value | 16 | 16 octets | |
| } | | | |
| } | | | |
| } | | | |
| **SAKKE payload {** | | | |
| Next payload | ‘00000100’B | Next payload is SIGN | |
| SAKKE params { | 1 | Parameter Set 1 according to RFC 6509 [23], Appendix A | |
| ID Scheme | 2 | '3GPP MCX hashed UID' (33.180 [94] E.1.2) | |
| SAKKE data length | Length of SAKKE data (in bytes) | 16 bits | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| SAKKE data | Encapsulated PCK | The PCK is encapsulated by using the public key (PubEncKey in KMS Certificate) and the UID generated from the MC Service user ID of the terminating user | |
| } | | | |
| SIGN (ECCSI) payload { | | | |
| Next payload | '00000000'B | This is the last payload | |
| S type | 2 | ECCSI signature | |
| S data | Signature:<br>In case of UL message the signature shall be validated by the SS | Signature created according to RFC 3830 [24] clause 5.2 using the algorithm according to RFC 6507 [98] clause 5.2.1 using the UID generated from the MC Service user ID of the initiating user | |
| } | | | |

Editor's note: Table 5.5.9.1-2 needs to be reviewed

- GMK distribution

**Table 5.5.9.1-3: MIKEY-SAKKE I_MESSAGE (GMK distribution by the SS)**

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| **MIKEY Common Header {** | Any | | |
| version | '00000001'B | | |
| Data Type | '00011010'B | SAKKE msg (26) | |
| Next payload | '00000101'B | Next payload is timestamp | |
| V | '0'B | | |
| PRF func | '0000001'B | PRF-HMAC-SHA-256 | |
| CSB ID | GUK-ID:<br>4 bit purpose tag ('0000'B for GMK) & 28 bit identifier | Group User Key Identifier Derived from GMK-ID and User Salt according to TS 33.180 [94] clause 5,2,3 | |
| #CS | '00000001'B | no crypto sessions in the CS ID map info. | |
| CS ID map type | 1 | empty map | |
| CS ID map Info { | Not present | | |
| } | | | |
| } | | | |
| **Timestamp Payload (T) {** | | | |
| Next payload | '00001011'B | Next payload is RAND | |
| TS Type | '00000000'B | NTP-UTC (0): 64-bits | |
| TS Value | Current system time | 64bit UTC value representing the number of seconds since 0h on 1 January 1900 with respect to the Coordinated Universal Time (UTC) | |
| } | | | |
| **RAND Payload {** | | | |
| Next payload | '00001110'B | Next payload is IDRi | |
| RAND len | '00010000'B | 16 Bytes RAND | |
| RAND | 128-bit random number arbitrarily selected by the SS | | |
| } | | | |
| **IDRi payload {** | | | |
| Next payload | '00001110'B | Next payload is IDRr | |
| ID Role | 1 | Initiator (IDRi) | |
| ID Type | 1 | URI | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_GMS | MCPTT identifier associated with the group management server | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| | px_MCVideo_GMS | MCVideo identifier associated with the group management server | MCVIDEO |
| | px_MCData_GMS | MCData identifier associated with the group management server | MCDATA |
| } | | | |
| **IDRr payload {** | | | |
| Next payload | ‘00001110’B | Next payload is IDRkmsi | |
| ID Role | 2 | Responder (IDRr) | |
| ID Type | 1 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_User_A_ID | MCPTT ID associated to the group management client | |
| | px_MCVideo_User_A_ID | MCVideo ID associated to the group management client | MCVIDEO |
| | px_MCData_User_A_ID | MCData ID associated to the group management client | MCDATA |
| } | | | |
| **IDRkmsi payload {** | | | |
| Next payload | ‘00001110’B | Next payload is IDRkmsr | |
| ID Role | 6 | Initiator's KMS (IDRkmsi) | |
| ID Type | 1 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the group management server | |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the group management server | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the group management server | MCDATA |
| } | | | |
| **IDRkmsr payload {** | | | |
| Next payload | ‘00011010’B | Next payload is SAKKE (26) | |
| ID Role | 7 | Responder's KMS (IDRkmsr) | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| ID Type | 1 | | |
| ID len | Length of ID Data | | |
| ID data | px_MCPTT_KMS | the URI of the MCPTT KMS used by the MCPTT user | |
| | px_MCVideo_KMS | the URI of the MCVideo KMS used by the group management server | MCVIDEO |
| | px_MCData_KMS | the URI of the MCData KMS used by the group management server | MCDATA |
| } | | | |
| **SAKKE payload {** | | | |
| Next payload | '00010101'B | Next payload is General Extension | |
| SAKKE params | 1 | RFC 6509 [23], Appendix A | |
| ID Scheme | 2 | '3GPP MCX hashed UID' (33.180 [94] E.1.2) | |
| SAKKE data length | Length of SAKKE data (in bytes) | | |
| SAKKE data | Encapsulated GMK | The GMK is encapsulated by using the SAKKE public key and the UID generated from the MC Service user ID of the group management client (provided in IDRr) | |
| } | | | |
| **General Extension Payload {** | | | |
| Next payload | '00000100'B | Next payload is SIGN | |
| Type | 7 | '3GPP key parameters' See 33.180 [94] clause E.6.1 | |
| ..Length | Length of the data (in bytes) | | |
| Data { | | See TS 33.180 [94] clause E.6 | |
| Key Type | '00000000'B | GMK | |
| Status | '1' | Not-revoked | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| Activation Time | 0 | The time in UTC at which the associated GMK is to be made active for transmission in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). It shall be 5 octets in length.<br>A value of 0 shall imply the activation time is the timestamp of the received MIKEY I_MESSAGE | |
| Expiry Time | 0 | The 'Expiry time' element shall define the time in UTC at which the associated key shall no longer be used in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). It shall be 5 octets in length.<br>A value of 0 shall imply the key shall not expire. | |
| Text | "" | no text:<br>Text element shall contain Length sub-element with the value 0 (see TS 33.180 [94] E.6.5) | |
| Group IDs { | | | |
| Number of Group IDs | '1' | | |
| Group ID | px_MCPTT_Group_A_ID | The ID for the group associated with the key. | |
| | px_MCVideo_Group_A_ID | The ID for the group associated with the key. | MCVIDEO |
| | px_MCData_Group_A_ID | The ID for the group associated with the key. | MCDATA |
| } | | | |
| } | | | |
| } | | | |
| SIGN (ECCSI) payload { | | | |
| Next payload | ‘00000000’B | This is the last payload | |

| Derivation path: RFC 6509 [23], RFC 6043 [25], RFC 3830 [24] | | | |
|---|---|---|---|
| **Field** | **Value/remark** | **Comment** | **Condition** |
| S type | 2 | ECCSI signature | |
| S data | Signature | The signature shall be created according to RFC 3830 [24] clause 5.2 using the algorithm according to RFC 6507 [98] clause 5.2.1 using the UID generated from the identifier associated with the group management server | |
| } | | | |

## 5.5.10 Common MCPTT test USIM parameters

### 5.5.10.1 General

The format and coding of elementary files of the USIM are defined in 3GPP TS 31.102 [73]. Those of the ISIM are defined in 3GPP TS 31.101 [79] and 3GPP TS 31.103 [80].

The present clause defines default MCPTT relevant parameters for programming the elementary files of the test USIM when running conformance test cases defined in 3GPP TS 36.579-2 [2].

For requirements to the test USIM/ISIM needed for the E-UTRA/EPC and MCPTT off-network ProSe operation see 3GPP TS 36.508 [6], subclause 4.9.

### 5.5.10.2 Default settings for the Elementary Files (EFs)

$EF_{UST}$ (USIM Service Table)

| **Services** | **Discription** | **Activated** | **Version** |
|---|---|---|---|
| Service n°109 | MCPTT | Yes | |
| NOTE: Only the relevant MCPTT related services indicated. | | | |

$EF_{MST}$ (MCPTT Service Table)

This file shall be present. This EF indicates the coding of the MCPTT management objects and which MCPTT services are available.

Coding of the MCPTT management objects = '00' (XML format).

| **Services** | **Discription** | **Activated** | **Version** |
|---|---|---|---|
| Service n°1: | UE configuration data | Yes | |
| Service n°2: | User configuration data | Yes | |
| Service n°3: | Group configuration data | Yes | |
| Service n°4: | Service configuration data | Yes | |

$EF_{MCPTT\_CONFIG}$ (MCPTT configuration data)

This file shall be present.

Encoded in XML format (as specified in the MCPTT Service Table).

| MCPTT configuration data objects | Tag Values | Condition |
|---|---|---|
| MCPTT UE configuration data | '80' | Shall be present.<br>The content of the MCPTT UE configuration data object shall be as specified in Table 5.5.8.2-1. |
| MCPTT User configuration data | '81' | Shall be present.<br><br>The content of the MCPTT User configuration data object shall be as specified in Table 5.5.8.3-1. |
| MCPTT Group configuration data | '82' | Shall be present.<br><br>The content of the MCPTT Group configuration data object shall be as specified in Table 5.5.7.1-1. |
| MCPTT Service configuration data | '83' | Shall be present.<br><br>The content of the MCPTT Server configuration data object shall be as specified in Table 5.5.8.4-1. |

## 5.5.11 Default MCVideo Transmission Control Messages and other Information Elements

### 5.5.11.1 Transmission Control Specific Messages Sent by the Transmission Participant

#### 5.5.11.1.1 Transmission Request

**Table: 5.5.11.1.1-1 Transmission Request**

| Derivation Path: TS 24.581 [88] Table 9.2.4-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | “00000” | Transmission control messages sent by the transmission control participant to the transmission control server | TC 24.581 [88] Section 9.2.7 and Table 9.2.2.1-1 | |
| **SSRC** | The content of this field is described for each transmission control message separately. | The SSRC field carries the SSRC of the transmission participant sending the Transmission Request message. The participant has permission to send media. | IETF RFC 3550 [3]. | |
| **Transmission Priority Field** | | | TC 24.581 [88] Section 9.2.3.2 | |
| Transmission Priority Field ID | “00000000” | 8-bit binary value | | |
| Transmission Priority Length | “00000010” | A binary value that has the value '2'<br><br>Indicates the total length in octets of the <Transmission priority> value item and the spare bits. | | |
| Transmission Priority Value | Consists of 8 bit parameter giving the transmission priority ('0' | If the Transmission Priority field is not included in the message | | |

| Derivation Path: TS 24.581 [88] Table 9.2.4-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | to '255') where '0' is the lowest priority and '255' is the highest priority | the default priority is used as the Transmission Priority value. The value of the default priority is '0'. The default priority is sometimes referred to as normal priority. Whether a transmission priority is pre-emptive or not is determined:<br><br>1. for on-network by the transmission control server as described in subclause x.y; and<br><br>2. for off-network by the transmission arbitrator as described in subclause y.z. | | |
| Spare bits | An 8-bit binary value set to zero. | | | |
| User ID Field | | The User ID field is used in off-network only. The User ID field carries the MCVideo ID of the transmission participant sending the Transmission Release message. | TC 24.581 [88] Section 9.3.2.8 | |
| User ID field ID | a binary value | | | |
| User ID length | a binary value that includes the value indicating the length in octets of the <User ID> value item except padding. | | | |
| User ID | User-id = URI | If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | | |
| **Transmission Indicator Field** | | | TC 24.581 [88] Section 9.2.3.11 | |
| Transmission Indicator field ID | A binary value | | TC 24.581 [88] Section 9.2.3.1.1 | |
| Transmission Indicator Length | A binary value and has the value '2' | | | |
| Transmission Indicator | “00001101” in binary | Contains additional information about a received transmission control message. | TC 24.581 [88] Section 9.2.3.1.1 | |

| Derivation Path: TS 24.581 [88] Table 9.2.4-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | It is a 16 bit bit-map named as shown in Table 9.2.3.11.2 (a thru P).<br>When set to 1, the bit has the following meaning:<br><br>A = Normal call<br><br>B = Broadcast group call<br><br>C = System call<br><br>D = Emergency call<br><br>E = Imminent peril call<br><br>NOTE 1: The indicators C, D and E are only informative. There are no procedures specified for the C, D and E indicators in this release of the present document and the use of the indicators are implementation specific.<br><br>Bits F to P are reserved for future use and are set to 0.<br><br>There can be more than one bit set to 1 at the same time. The local policy in the transmission control server decides which combinations are possible and the priority of the indications. | | |

### 5.5.11.1.2 Transmission Release

**Table: 5.5.11.1.2-1 Transmission Release**

| Derivation Path: TS 24.581 [88] Table 9.2.7-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00010" | Transmission control messages sent by the transmission control participant to the transmission control server | TC 24.581 [88] Section 9.2.7 and Table 9.2.2.1-1 | |
| **SSRC** | The content of this field is described for each transmission control message separately. | The SSRC field carries the SSRC of the transmission participant | IETF RFC 3550 [3]. | |

| Derivation Path: TS 24.581 [88] Table 9.2.7-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | with permission to send media. | | |
| User ID Field | | The User ID field is used in off-network only. The User ID field carries the MCVideo ID of the transmission participant sending the Transmission Release message. | TC 24.581 [88] Section 9.3.2.8 | |
| User ID field ID | a binary value | | | |
| User ID length | a binary value that includes the value indicating the length in octets of the <User ID> value item except padding. | | | |
| User ID | User-id = URI | If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | | |
| Transmission Indicator Field | | | | |
| Transmission Indicator field ID | A binary value | | TC 24.581 [88] Section 9.2.3.1.1 | |
| Transmission Indicator Length | A binary value and has the value '2' | | | |
| Transmission Indicator | “00001101” in binary | Contains additional information about a received transmission control message.<br>It is a 16 bit bit-map named as shown in Table 9.2.3.11.2 (a thru P).<br>When set to 1, the bit has the following meaning:<br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TC 24.581 [88] Section 9.2.3.1.1 | |

| Derivation Path: TS 24.581 [88] Table 9.2.7-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | NOTE 1: The indicators C, D and E are only informative. There are no procedures specified for the C, D and E indicators in this release of the present document and the use of the indicators are implementation specific.<br><br>Bits F to P are reserved for future use and are set to 0.<br><br>There can be more than one bit set to 1 at the same time. The local policy in the transmission control server decides which combinations are possible and the priority of the indications. | | |

### 5.5.11.1.3 Queue Position Request

**Table: 5.5.11.1.3-1 Queue Position Request**

| Derivation Path: TS 24.581 [88] Table 9.2.11-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00011" | Server → client | TS 24.581 [88] 9.2.2.1-1 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission participant requesting information about its position in the transmission request queue. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID field carries the MCVideo user ID of the transmission participant sending the Queue Position Request message. | TS 24.581 [88] 9.2.3.8 | |
| **Track Info Field** | The Track Info Field is included when an MCVideo call involves a | | TS 24.581 [88] 9.2.3.13 | |

| Derivation Path: TS 24.581 [88] Table 9.2.11-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | non-controlling MCVideo function. | | | |
| Track Info field ID | An 8-bit binary value | | TS 24.581 [88] 8.2.3.1-2 | |
| Track Info length | An 8-bit binary value | Indicates the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | | |
| Queueing Capability | An 8-bit binary value | '0' the transmission participant in the MCVideo client does not support queueing<br><br>'1' the transmission participant in the MCVideo client supports queueing<br><br>All other values are reserved for future use. | | |
| Participant Type Length | 8 bit binary value set to the length of the <Participant Type> value. | | | |
| Participant Type Value | 1*( %x20-7E / UTF8-NONASCII | If the length of the <Participant Type> value is not a multiple of 4 bytes, the <Participant Type> value is padded to a multiple of 4 bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver.<br><br>NOTE 1: The content of the <Participant Type> value is MCVideo service provider specific and out of scope of the present document. | | |
| Transmission Participant Reference Value | a 32 bit binary value | Contains a reference to the transmission participant in the non-controlling MCVideo function of an MCVideo group. | | |

| Derivation Path: TS 24.581 [88] Table 9.2.11-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | NOTE 2: The reference to the transmission participant is a value only understandable by the transmission control server interface in the non-controlling MCVideo function of an MCVideo group. | | |

### 5.5.11.1.4 Receive Media Request

**Table: 5.5.11.1.4-1 Receive Media Request**

| Derivation Path: TS 24.581 [88] Table 9.2.14-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00100" | Server → client | TS 24.581 [88] 9.2.2.1-1 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used to carry the identity of the user who is requesting the reception of the media<br><br>Note: If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.8 | |
| **SSRC of Transmitter** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC of transmitter field carries the SSRC of the user transmitting the media. | TS 24.581 [88] 9.2.3.6<br>RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| **Source ID** | 16-bit binary value | Carries the identity of the user who transmitting the media. | | |

| Derivation Path: TS 24.581 [88] Table 9.2.14-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |
| **Transmission Indicator** | **“**00001101” | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.11 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | “00000010” | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |
| **Reception Priority** | 24-bit binary value (8 bits are spare) | Describes the level of reception priority requested in a Reception Request message or granted in a Reception Granted message. The max reception priority that can be requested in a Reception Request message is negotiated between the transmission control participant and the transmission control server | TS 24.581 [88] 9.2.3.19 | |
| Reception Priority field ID | 8-bit binary value | Uniquely identifies the instance of the Reception Priority Field | TS 24.581 [88] 9.2.3.19 | |
| Reception Priority length | “00000010” | Indicates the total length in octets of the < Reception Priority> value item and the spare bits. | TS 24.581 [88] 9.2.3.19 | |

| Derivation Path: TS 24.581 [88] Table 9.2.14-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Reception Priority value | 8-bit binary value | The reception priority ('0' to '255') where '0' is the lowest reception priority and '255' is the highest reception priority. If the Reception Priority field is not included in the message the default reception priority is used as the Reception Priority value. The value of the default reception priority is '0'. The default reception priority is sometimes referred to as normal reception priority. | TS 24.581 [88] 9.2.3.19 | |
| **Track Info** | “00001011” | The Track Info field is included when an MCVideo call involves a non-controlling MCVideo function.<br>The Track Info field contains the path a transmission control message has been routed along with the priority and the queueing capability of the MCVideo client.<br><br>The <Track Info length> value is a binary value and has a value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Track Info Field ID | 8 bit binary value | Uniquely identifies an instance of the Track Info Field | TS 24.581 [88] 9.2.3.13 | |
| Track Info Length | 8 bit binary value | A value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Queueing Capability | 8 bit binary value =<br>“00000000”<br>or<br>“00000001” | The <Queueing Capability> value is an 8 bit binary value where:<br>'0' the transmission participant in the MCVideo client does not support queueing<br>'1' the transmission participant in the | TS 24.581 [88] 9.2.3.13 | |

| Derivation Path: TS 24.581 [88] Table 9.2.14-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | MCVideo client supports queueing | | |
| Participant Type Length | 8 bit binary value | Set to the length of the <Participant Type> value | TS 24.581 [88] 9.2.3.13 | |
| Participant Type | Participant-type = 1* (%x20-7E/UTF-NONASCII) | If the length of the <Participant Type> value is not a multiple of 4 bytes, the <Participant Type> value is padded to a multiple of 4 bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.13 | |
| Transmission Participant Reference | A 32 bit binary value | Contains a reference to the transmission participant in the non-controlling MCVideo function of a MCVideo Group.<br><br>The reference to the transmission participant is a value only understandable by the transmission control server interface in the non-controlling MCVideo function of an MCVideo group | TS 24.581 [88] 9.2.3.13 | |

### 5.5.11.1.5 Transmission Cancel Request

**Table: 5.5.11.1.5-1 Transmission Cancel Request**

| Derivation Path: TS 24.581 [88] Table 9.2.17-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00101" | Server → client | TS 24.581 [88] 9.2.2.1-1 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used to carry the identity of the user whose media transmission is requested for cancellation. | TS 24.581 [88] 9.2.3.8 | |

| Derivation Path: TS 24.581 [88] Table 9.2.17-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

### 5.5.11.1.6 Remote Transmission Request

**Table: 5.5.11.1.6-1 Remote Transmission Request**

| Derivation Path: TS 24.581 [88] Table 9.2.22-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00111" | Transmission control messages sent by the transmission control participant to the transmission control server | TC 24.581 [88] Section 9.2.7 and Table 9.2.2.1-1 | |
| **SSRC** | The content of this field is described for each transmission control message separately. | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user. | IETF RFC 3550 [3]. | |
| **Remote ID Field** | 16-bit binary field. | Carries the identity of the user whose media transmission is requested. | TC 24.581 [88] Section 9.3.2.8 | |
| **User ID Field** | | The User ID field is used in off-network only. The User ID field carries the MCVideo ID of the transmission participant sending the Transmission Release message. | TC 24.581 [88] Section 9.3.2.8 | |
| User ID field ID | a binary value | | | |
| User ID length | a binary value that includes the value indicating the length in octets of the <User ID> value item except padding. | | | |
| User ID | User-id = URI | If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | | |

### 5.5.11.1.7 Remote Transmission Cancel Request

**Table: 5.5.11.1.7-1 Remote Transmission Cancel Request**

| Derivation Path: TS 24.581 [88] Table 9.2.24-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01000" | Transmission control messages sent by the transmission control participant to the transmission control server | TC 24.581 [88] Section 9.2.7 and Table 9.2.2.1-1 | |
| **SSRC** | The content of this field is described for each transmission control message separately. | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user. | IETF RFC 3550 [3]. | |
| **User ID Field** | | The User ID field is used in off-network only. The User ID field carries the identity of the user whose media transmission is requested for cancellation. | TC 24.581 [88] Section 9.3.2.8 | |
| User ID field ID | a binary value | | | |
| User ID length | a binary value that includes the value indicating the length in octets of the <User ID> value item except padding. | | | |
| User ID | User-id = URI | If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | | |

### 5.5.11.2 Transmission Control Specific Messages Sent by the Transmission Control Server

#### 5.5.11.2.1 Transmission Granted

**Table: 5.5.11.2.1-1 Transmission Granted**

| Derivation Path: TS 24.581 [88] Table 9.2.5-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Subtype | “00000” | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| SSRC | The SSRC of the message Transmission Control Server | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network. Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| name | MCV1 | Transmission Control messages sent by the transmission control server and transmission control participant | | |
| Duration | | | | |
| Duration | "00000000 10000000" | 128 sec (an arbitrary value) | | |
| SSRC of granted transmission participant | The SSRC of the intended recipient of the message | Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| Transmission priority | Not present | If the Transmission Priority field is not included in the message the default priority (='0') is used as the Floor Priority value | | |
| User ID | Not present | | | ON-NETWORK |
| User ID | | | | OFF-NETWORK |
| User ID | px_MCVideo_User_A_ID | The MCVideo User ID of the transmission participant that was granted transmission. | | |
| Queue Size | Not present | | | ON-NETWORK |
| Queue Size | "0" | the number of queued MCVideo clients in the MCVideo call | | OFF-NETWORK |
| SSRC of queued floor participant | Not present | | | |
| Queued User ID | Not present | | | |
| Queue Info | Not present | | | |
| Track Info | Not present | The MCVideo call does not involve a non-controlling MCVideo function | | |
| Transmission Indicator | | | | |
| Transmission Indicator | Any allowed value | | | |

5.5.11.2.2 Transmission Rejected

**Table: 5.5.11.2.2-1 Transmission Rejected**

| Derivation Path: TS 24.581 [88] Table 9.2.6-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00001" | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Reject Cause** | 00000010 | Includes the reason for the rejecting the transmission request and can be followed by a text-string explaining why the transmission request was rejected. Therefore the length of the packet will vary depending on the size of the application dependent field. | | |
| **Reject Cause Value** | A 16-bit binary value | Cause #1 - Transmission limit reached<br><br>The <Reject cause> value set to '1' indicates that the number of transmitters have reached maximum.<br><br>Cause #2 - Internal transmission control server error<br><br>The <Reject cause> value set to '2' indicates that the transmission control server cannot grant the transmission request due to an internal error.<br><br>Cause #3 - Only one participant<br><br>The <Reject cause> value set to '3' indicates that the transmission control server cannot grant the transmission request, because the requesting party is the | <Reject Cause> values are listed in subclause 9.2.6.2. The Reject Cause field is coded as described in subclause 9.2.3.4.<br><br>Defined in subclause 9.2.6.2 for Transmission Rejected message and Defined in subclause 9.2.10.2 for Transmission Revoked message | |

| Derivation Path: TS 24.581 [88] Table 9.2.6-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | only participant in the MCVideo session.<br><br>Cause #4 - Retry-after timer has not expired<br><br>The <Reject cause> value set to '4' indicates that the transmission control server cannot grant the transmission request, because timer T9 (Retry-after) has not expired after permission to send media has been revoked.<br><br>Cause #5 - Receive only<br><br>The <Reject cause> value set to '5' indicates that the transmission control server cannot grant the transmission request, because the requesting party only has receive privilege.<br><br>Cause #6 - No resources available<br><br>The <Reject cause> value set to '6' indicates that the transmission control server cannot grant the transmission request due to congestion.<br><br>Cause #255 - Other reason<br><br>The <Reject cause> value set to '255' indicates that the transmission control server does not grant the transmission request due to the transmission control server local policy. | | |
| Reject Cause field ID | An 8-bit binary value | | | |
| Reject Cause Length | An 8-bit binary value | Indicates the total length in octets of the <Reject Cause > value and the <Reject Phrase> value items excluding any padding octets. If the length field is set to '2', there is no <Reject Phrase> value in the Reject Cause field. | | |

| Derivation Path: TS 24.581 [88] Table 9.2.6-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Reject Cause Phrase** | | A text string encoded the text string in the SDES item CNAME. | IETF RFC 3550 [3] | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID carries the MCVideo ID of the requesting transmission participant to which the Transmission Rejected message is sent. | TS 24.581 [88] 9.2.3.8 | |
| **Transmission Indicator** | **"**00001101" | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.11 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | "00000010" | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |

### 5.5.11.2.3 Transmission Arbitration Taken

**Table: 5.5.11.2.3-1 Transmission Arbitration Taken**

| Derivation Path: TS 24.581 [88] Table 9.2.8-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00010" | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |

| Derivation Path: TS 24.581 [88] Table 9.2.8-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Granted Party's Identity** | 32-bit value | Identifies the MCVideo user that is granted to send media. | TS 24.581 [88] 9.2.3.6 | |
| Granted Party's Identity Field ID | 8-bit binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Granted Party's Identity length | 8-bit binary value | | TS 24.581 [88] 9.2.3.8 | |
| Granted Party's Identity | | If the length of the <Granted Party's> value is not (2 + multiple of 4) bytes, the Granted Party's Identity field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.8 | |
| **Permission to Request the Transmission** | Binary value | Indicates whether receiving parties are allowed to request the transmission. | TS 24.581 [88] 9.2.3.8 | |
| Permission to Request the Transmission Field ID | Binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Permission to Request the Transmission length | Binary value | The <Permission to Request the Transmission length> value is a binary value and has the value '2' indicating the total length in octets of the <Duration> value item. | TS 24.581 [88] 9.2.3.7 | |
| Permission to Request the Transmission | Binary value | Coded as follows:<br>0 The receiver is not permitted to request transmission.<br>1 The receiver is permitted to request transmission | TS 24.581 [88] 9.2.3.7 | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID carries the MCVideo ID of the transmission participant sending the Transmission Arbitration Taken message. | TS 24.581 [88] 9.2.3.8 | |

| Derivation Path: TS 24.581 [88] Table 9.2.8-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Message Sequence Number** | | Used to bind a number of Transmission Arbitration Taken or bind a number of Transmission Idle messages together | TS 24.581 [88] 9.2.3.9 | |
| Message Sequence Number field ID | 8-bit binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Message Sequence Number length | 8-bit binary value | Has the value '2' indicating the total length in octets of the <Message Sequence Number> value item. | | |
| Message Sequence Number | 16-bit binary value | The <Message Sequence Number> value can be between '0' and '65535'. When the '65535' value is reached, the <Message Sequence Number> value starts from '0' again. | | |
| **Transmission Indicator** | **“**00001101” | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.1.1 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | “00000010” | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |
| **SSRC of Granted Transmission Participant** | 92-bit binary value | | IETF RFC 3550 [3] | |

### 5.5.11.2.4 Transmission Arbitration Release

**Table: 5.5.11.2.4-1 Transmission Arbitration Release**

| Derivation Path: TS 24.581 [88] Table 9.2.9-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00010" | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Granted Party's Identity** | 32-bit value | Identifies the MCVideo user that is granted to send media. | TS 24.581 [88] 9.2.3.6 | |
| Granted Party's Identity Field ID | 8-bit binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Granted Party's Identity length | 8-bit binary value | | TS 24.581 [88] 9.2.3.8 | |
| Granted Party's Identity | | If the length of the <Granted Party's> value is not (2 + multiple of 4) bytes, the Granted Party's Identity field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.8 | |
| **Permission to Request the Transmission** | Binary value | Indicates whether receiving parties are allowed to request the transmission. | TS 24.581 [88] 9.2.3.8 | |
| Permission to Request the Transmission Field ID | Binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Permission to Request the Transmission length | Binary value | The <Permission to Request the Transmission length> value is a binary value and has the value '2' indicating the total length in octets of the <Duration> value item. | TS 24.581 [88] 9.2.3.7 | |
| Permission to Request the Transmission | Binary value | Coded as follows:<br>0 The receiver is not permitted to request transmission. | TS 24.581 [88] 9.2.3.7 | |

| Derivation Path: TS 24.581 [88] Table 9.2.9-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | 1 The receiver is permitted to request transmission | | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID carries the MCVideo ID of the transmission participant sending the Transmission Arbitration Release message. | TS 24.581 [88] 9.2.3.8 | |
| **Message Sequence Number** | | Used to bind a number of Transmission Arbitration Taken or bind a number of Transmission Idle messages together | TS 24.581 [88] 9.2.3.9 | |
| Message Sequence Number field ID | 8-bit binary value | | TS 24.581 [88] 9.2.3.1.1 | |
| Message Sequence Number length | 8-bit binary value | Has the value '2' indicating the total length in octets of the <Message Sequence Number> value item. | | |
| Message Sequence Number | 16-bit binary value | The <Message Sequence Number> value can be between '0' and '65535'. When the '65535' value is reached, the <Message Sequence Number> value starts from '0' again. | | |
| **Transmission Indicator** | **“**00001101” | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call | TS 24.581 [88] 9.2.3.1.1 | |

| Derivation Path: TS 24.581 [88] Table 9.2.9-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | E = Imminent peril call | | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | “00000010” | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |
| **SSRC of Granted Transmission Participant** | 92-bit binary value | | IETF RFC 3550 [3] | |

### 5.5.11.2.5 Transmission Revoked

**Table: 5.5.11.2.5-1 Transmission Revoked**

| Derivation Path: TS 24.581 [88] Table 9.2.10-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | “00100” | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Reject Cause** | 00000010 | Message includes <Reject Cause> cause value in the Reject Cause field explaining why the transmission control server wants the transmission participant to stop sending media and can be followed by additional information. Therefore the length of the packet can vary depending on the value of the rejection cause. | TS 24.581 [88] 9.2.3.4 | |
| **Reject Cause Value** | A 16-bit binary value | Cause #1 - Transmission limit reached<br><br>The <Reject cause> value set to '1' indicates that the number of transmitters have reached maximum.<br><br>Cause #2 - Internal transmission control server error | <Reject Cause> values are listed in subclause 9.2.6.2. The Reject Cause field is coded as described in subclause 9.2.3.4.<br><br>Defined in subclause 9.2.6.2 for Transmission | |

| Derivation Path: TS 24.581 [88] Table 9.2.10-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | The <Reject cause> value set to '2' indicates that the transmission control server cannot grant the transmission request due to an internal error.<br><br>Cause #3 - Only one participant<br><br>The <Reject cause> value set to '3' indicates that the transmission control server cannot grant the transmission request, because the requesting party is the only participant in the MCVideo session.<br><br>Cause #4 - Retry-after timer has not expired<br><br>The <Reject cause> value set to '4' indicates that the transmission control server cannot grant the transmission request, because timer T9 (Retry-after) has not expired after permission to send media has been revoked.<br><br>Cause #5 - Receive only<br><br>The <Reject cause> value set to '5' indicates that the transmission control server cannot grant the transmission request, because the requesting party only has receive privilege.<br><br>Cause #6 - No resources available<br><br>The <Reject cause> value set to '6' indicates that the transmission control server cannot grant the transmission request due to congestion.<br><br>Cause #255 - Other reason<br><br>The <Reject cause> value set to '255' indicates that the transmission control server does not grant the transmission | Rejected message and Defined in subclause 9.2.10.2 for Transmission Revoked message | |

| Derivation Path: TS 24.581 [88] Table 9.2.10-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | request due to the transmission control server local policy. | | |
| Reject Cause field ID | An 8-bit binary value | | | |
| Reject Cause Length | An 8-bit binary value | Indicates the total length in octets of the <Reject Cause > value and the <Reject Phrase> value items excluding any padding octets. If the length field is set to '2', there is no <Reject Phrase> value in the Reject Cause field. | | |
| Reject Cause Phrase | | A text string encoded the text string in the SDES item CNAME. | IETF RFC 3550 [3] | |
| **Transmission Indicator** | **"**00001101" | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.11 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | "00000010" | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |

### 5.5.11.2.6 Queue Position Info

**Table: 5.5.11.2.6-1 Queue Position Info**

| Derivation Path: TS 24.581 [88] Table 9.2.11-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00101" | Server → client | TS 24.581 [88] 9.2.2.1-1 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the transmission control server. | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID field carries the MCVideo user ID of the transmission participant sending the Queue Position Info message. | TS 24.581 [88] 9.2.3.8 | |
| **SSRC of Queued Transmission Participant** | | Applicable only in off-network and shall carry the SSRC of the queued transmission participant. | IETF RFC 3550 [3]. | |
| **Queued User ID** | | Used in off-network only. The Queued User ID field carries the MCVideo ID of the queued transmission control participant. | TS 24.581 [88] 9.2.3.8 | |
| **Queue Info** | Defines the queue position and granted transmission control priority in the queue. | | TS 24.581 [88] 9.2.3.5 | |
| **Track Info Field** | The Track Info Field is included when an MCVideo call involves a non-controlling MCVideo function. | | TS 24.581 [88] 9.2.3.13 | |
| Track Info field ID | An 8-bit binary value | | TS 24.581 [88] 8.2.3.1-2 | |
| Track Info length | An 8-bit binary value | Indicates the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | | |
| Queueing Capability | An 8-bit binary value | '0' the transmission participant in the MCVideo client | | |

| Derivation Path: TS 24.581 [88] Table 9.2.11-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | does not support queueing<br><br>'1' the transmission participant in the MCVideo client supports queueing<br><br>All other values are reserved for future use. | | |
| Participant Type Length | 8 bit binary value set to the length of the <Participant Type> value. | | | |
| Participant Type Value | 1*( %x20-7E / UTF8-NONASCII | If the length of the <Participant Type> value is not a multiple of 4 bytes, the <Participant Type> value is padded to a multiple of 4 bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver.<br><br>NOTE 1: The content of the <Participant Type> value is MCVideo service provider specific and out of scope of the present document. | | |
| Transmission Participant Reference | a 32 bit binary value | Contains a reference to the transmission participant in the non-controlling MCVideo function of an MCVideo group.<br><br>NOTE 2: The reference to the transmission participant is a value only understandable by the transmission control server interface in the non-controlling MCVideo function of an MCVideo group. | | |
| **Transmission Control Indicator** | | | TS 24.581 [88] 9.2.3.15 (wrong ref in TS 24.581) | |

### 5.5.11.2.7 Media Transmission Notification

**Table: 5.5.11.2.7-1 Media Transmission Notification**

| Derivation Path: TS 24.581 [88] Table 9.2.13-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00110" | Server → client | TS 24.581 [88] | |

| Derivation Path: TS 24.581 [88] Table 9.2.13-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | | 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | User-id=URI |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | ? | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used in off-network only. The User ID carries the MCVideo ID of the requesting transmission participant to which the Transmission Rejected message is sent. | TS 24.581 [88] 9.2.3.8 | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3 | |
| **Track Info** | “00001011” | The Track Info field is included when an MCVideo call involves a non-controlling MCVideo function. The Track Info field contains the path a transmission control message has been routed along with the priority and the queueing capability of the MCVideo client.<br><br>The <Track Info length> value is a binary value and has a value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Track Info Field ID | 8 bit binary value | Uniquely identifies an instance of the Track Info Field | TS 24.581 [88] 9.2.3.13 | |

| Derivation Path: TS 24.581 [88] Table 9.2.13-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Track Info Length | 8 bit binary value | A value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Queueing Capability | 8 bit binary value = "00000000" or "00000001" | The <Queueing Capability> value is an 8 bit binary value where:<br>'0' the transmission participant in the MCVideo client does not support queueing<br>'1' the transmission participant in the MCVideo client supports queueing | TS 24.581 [88] 9.2.3.13 | |
| Participant Type Length | 8 bit binary value | Set to the length of the <Participant Type> value | TS 24.581 [88] 9.2.3.13 | |
| Participant Type | Participant-type = 1* (%x20-7E/UTF-NONASCII) | If the length of the <Participant Type> value is not a multiple of 4 bytes, the <Participant Type> value is padded to a multiple of 4 bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.13 | |
| Transmission Participant Reference | A 32 bit binary value | Contains a reference to the transmission participant in the non-controlling MCVideo function of a MCVideo Group.<br><br>The reference to the transmission participant is a value only understandable by the transmission control server interface in the non-controlling MCVideo function of an MCVideo group | TS 24.581 [88] 9.2.3.13 | |

### 5.5.11.2.8 Receive Media Response

**Table: 5.5.11.2.8-1 Receive Media Response**

| Derivation Path: TS 24.581 [88] Table 9.2.15-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00111" | Server → client | TS 24.581 [88] 9.2.2.1-1 | |

| Derivation Path: TS 24.581 [88] Table 9.2.15-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **PT=AP=204** | | Listed in diagram of field layout, but nit in definition of elements | TS 24.581 [88] 9.2.15 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 | |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Name** | “MCV1” | Listed in diagram of field layout, but nit in definition of elements | TS 24.581 [88] 9.2.15 | |
| **Result** | | Indicates whether media reception is possible as per the request | | |
| **Reject Cause** | | Includes the reason for the rejecting the media receive request and can be followed by a text-string explaining why the media receive request was rejected. Therefore the length of the packet will vary depending on the size of the application dependent field | | |
| Reject Cause Field ID | 8-bit binary value | Uniquely identifies the instance of the Reject Cause Field | | |
| Reject Cause length | 8-bit binary value | Indicates the total length in octets of the <Reject Cause > value and the <Reject Phrase> value items excluding any padding octets. If the length field is set to '2', there is no <Reject Phrase> value in the Reject Cause field. | | |
| Reject Cause value | 16-bit binary value | The <Reject cause> value set to…<br><br>'2' indicates that the transmission control server cannot grant the receive media request due to an internal error.<br><br>'4' indicates that the transmission control server cannot grant the receive media request, because timer T9 (Retry-after) has not | TS 24.3581, clause 9.2.15.2 | |

| Derivation Path: TS 24.581 [88] Table 9.2.15-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | expired after permission to send media has been revoked.<br><br>'5' indicates that the transmission control server cannot grant the receive media request, because the requesting party only has send privilege.<br><br>'6' indicates that the transmission control server cannot grant the receive media request due to congestion.<br><br>'255' indicates that the transmission control server does not grant the receive media request due to the transmission control server local policy | | |
| Reject Phase | Length of the packet will vary depending on the size of the application dependent field | A text string encoded the text string in the SDES item CNAME (specified in RFC 3550 [3]) | TS 24.3581, clause 9.2.3.4 | |
| **SSRC of Transmitter** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC of transmitter field carries the SSRC of the user transmitting the media. | TS 24.581 [88] 9.2.3.16<br>RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |
| **Transmission Indicator** | “00001101” | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply: | TS 24.581 [88] 9.2.3.11 | |

| Derivation Path: TS 24.581 [88] Table 9.2.15-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | “00000010” | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |

### 5.5.11.2.9 Media Reception Notification

**Table: 5.5.11.2.9-1 Media Reception Notification**

| Derivation Path: TS 24.581 [88] Table 9.2.16-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | “01000” | Server → client | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | User-id=URI |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | ? | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field carries the MCVideo ID of the user transmitting the media.<br>Note: If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.8 | |
| **SSRC of Transmitter** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC of transmitter field carries the SSRC of the user transmitting the media. | TS 24.581 [88] 9.2.3.6<br>RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |

| Derivation Path: TS 24.581 [88] Table 9.2.16-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| SSRC value | 16-bit binary value | | RFC 3550[3] | |
| **Permission to Request the Transmission** | **"**00000101" | The Permission to Request the Transmission field indicates whether receiving parties are allowed to request the transmission.<br><br>The <Permission to Request the Transmission length> value is a binary value and has the value '2' indicating the total length in octets of the <Duration> value item.<br>The <Permission to Request the Transmission> value is binary and coded as follows:<br>0 The receiver is not permitted to request transmission.<br>1 The receiver is permitted to request transmission. | TS 24.581 [88] 9.2.3.7, Table 9.2.3.1-1 | |
| **Transmission Indicator** | **"**00001101" | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.11 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies andf instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | "00000010" | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3 | |

| Derivation Path: TS 24.581 [88] Table 9.2.16-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Track Info** | "00001011" | The Track Info field is included when an MCVideo call involves a non-controlling MCVideo function. The Track Info field contains the path a transmission control message has been routed along with the priority and the queueing capability of the MCVideo client.<br><br>The <Track Info length> value is a binary value and has a value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Track Info Field ID | 8 bit binary value | Uniquely identifies an instance of the Track Info Field | TS 24.581 [88] 9.2.3.13 | |
| Track Info Length | 8 bit binary value | A value indicating the total length in octets of the <Queueing Capability> value and one or more <Transmission Participant Reference> value items. | TS 24.581 [88] 9.2.3.13 | |
| Queueing Capability | 8 bit binary value = "00000000"<br>or<br>"00000001" | The <Queueing Capability> value is an 8 bit binary value where:<br>'0' the transmission participant in the MCVideo client does not support queueing<br>'1' the transmission participant in the MCVideo client supports queueing | TS 24.581 [88] 9.2.3.13 | |
| Participant Type Length | 8 bit binary value | Set to the length of the <Participant Type> value | TS 24.581 [88] 9.2.3.13 | |
| Participant Type | Participant-type = 1*(%x20-7E/UTF-NONASCII) | If the length of the <Participant Type> value is not a multiple of 4 bytes, the <Participant Type> value is padded to a multiple of 4 bytes. The value of the padding bytes is set to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.13 | |
| Transmission Participant Reference | A 32 bit binary value | Contains a reference to the transmission participant in the non-controlling MCVideo function of a MCVideo Group.<br><br>The reference to the transmission participant is a value only understandable by the transmission control server interface in the non-controlling MCVideo function of an MCVideo group | TS 24.581 [88] 9.2.3.13 | |

5.5.11.2.10 Transmission Cancel Response

**Table 5.5.11.2.10-1 Transmission Cancel Response**

| Derivation Path: TS 24.581 [88] Table 9.2.18-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01001" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.18 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

5.5.11.2.11 Transmission Cancel Request Notify

**Table: 5.5.11.2.11-1 Transmission Cancel Request Notify**

| Derivation Path: TS 24.581 [88] Table 9.2.19-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01010" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.19 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

### 5.5.11.2.12 Remote Transmission Response

**Table: 5.5.11.2.12-1 Remote Transmission Response**

| Derivation Path: TS 24.581 [88] Table 9.2.23-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01011" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.20 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC field carries the SSRC of the transmission control server.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **Media ID** | 16-bit binary value | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

### 5.5.11.2.13 Remote Transmission Cancel Response

**Table: 5.5.11.2.13-1 Remote Transmission Cancel Response**

| Derivation Path: TS 24.581 [88] Table 9.2.25-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01100" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.20 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **Media ID** | 16-bit binary value | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

### 5.5.11.2.14 Media Reception Override Notification

**Table: 5.5.11.2.14-1 Media Reception Override Notification**

| Derivation Path: TS 24.581 [88] Table 9.2.8-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01101" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.20 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC field carries the SSRC of the transmission participant requesting the reception of the media from another user.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **User ID** | 16-bit binary value | Carries the identity of the user who is requesting the reception of the media. | TS 24.581 [88] 9.2.3.8 | |
| **Overriding ID** | 16-bit binary value | Carries the identity of the user of the overriding media. | TS 24.581 [88] 9.2.3.8 | |
| **Media ID** | 16-bit binary value | The Media ID field is present only if media multiplexing is used. The Media ID field identifies the communication of overriding media within a media multiplex. | TS 24.581 [88] 9.2.3.x | |
| **Overridden ID** | 16-bit binary value | Carries the identity of the user of the overridden media. | TS 24.581 [88] 9.2.3.8 | |

### 5.5.11.2.15 Transmission End Notify

**Table: 5.5.11.2.15-1 Transmission End Notify**

| Derivation Path: TS 24.581 [88] Table 9.2.29-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01110" | Server → client | TS 24.581 [88] 9.2.2.1-2 and subclause 9.2.20 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC field carries the SSRC of the transmission control server.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **User ID** | 16-bit binary value | Carries the identity of the user whose media | TS 24.581 [88] 9.2.3.8 | |

| Derivation Path: TS 24.581 [88] Table 9.2.29-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | transmission has been released | | |
| **Media ID** | 16-bit binary value | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

5.5.11.2.16 Transmission Idle

**Table: 5.5.11.2.16-1 Transmission Idle**

| Derivation Path: TS 24.581 [88] Table 9.2.30-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "01111" | | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | The SSRC of the Transmission Control Server | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| **name** | "MCV1" | Transmission Control messages sent by the Transmission Control Server and the Transmission Control Participant. | | |
| **Message Sequence Number** | | | | |
| **Message Sequence Number** | The value sent in the previous Transmission Idle message, if any, increased with 1 | Any value between '0' and '65535'<br>When the '65535' value is reached, the <Message Sequence Number> value starts from '0' again | | |
| **Application-dependent Data** | | Each application specific data field is composed of:<br><br>1. a field ID which is one octet long;<br><br>2. a length value which is:<br><br>- one octet long, if the field ID is less than 192; and<br><br>- two octets long, if the field ID is equal to or greater than 192;<br><br>3. a field value. The length in octets of the field value is | | |

| Derivation Path: TS 24.581 [88] Table 9.2.30-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | indicated in the length value; and<br><br>4. a padding. The padding is zero, one, two, or three octets long. The value of the padding octet(s) is set to zero by sender and ignored by receiver.<br><br>An application specific data field has always a multiple of 4 octets. | | |
| **Secure RTCP message part** | | RTCP message part is in specified in clause x and in IETF RFC 3711 [4] | | |
| **Transmission Indicator** | | | | |
| **Transmission Indicator** | "1000010000000000" | bit A=1 (Normal call)<br>bit F=1 (Queueing supported) | | |

## 5.5.11.3 Transmission control specific messages sent by both the transmission control server and transmission control participant

### 5.5.11.3.1 Transmission End Request

**Table: 5.5.11.3.1-1 Transmission End Request**

| Derivation Path: TS 24.581 [88] Table 9.2.20-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | “00000” | | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | The SSRC of the message sender | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network.<br>Notation in accordance with subclause 5.5.6.1.<br>Coded as specified in IETF RFC 3550 [76]. | | |
| **User ID** | | The User ID field is used to carry the identity of the user whose media transmission is requested to be terminated. | | |
| **Field ID** | “00000110” | User ID = 00000110<br>Overriding ID = | | |

| Derivation Path: TS 24.581 [88] Table 9.2.20-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | 00010001<br>Overridden ID = 00010010 | | |
| **value** | px_MCVideo_User_A_ID | | | |
| **Media ID** | Not Present | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | | |

### 5.5.11.3.2 Transmission End Response

**Table: 5.5.11.3.2-1 Transmission End Response**

| Derivation Path: TS 24.581 [88] Table 9.2.21-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00001" | | TS 24.581 [88] 9.2.2.1-2 | |
| **SSRC** | The SSRC of the message sender | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network.<br>Notation in accordance with subclause 5.5.6.1.<br>Coded as specified in IETF RFC 3550 [76]. | | |
| **User ID** | | The User ID field is used to carry the identity of the user whose media transmission is requested to be terminated. | | |
| **Field ID** | "00000110" | User ID = 00000110<br>Overriding ID = 00010001<br>Overridden ID = 00010010 | | |
| **value** | px_MCVideo_User_A_ID | | | |

| Derivation Path: TS 24.581 [88] Table 9.2.21-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Media ID** | Not Present | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | | |

### 5.5.11.3.3 Media Reception End Request

**Table: 5.5.11.3.3-1 Media Reception End Request**

| Derivation Path: TS 24.581 [88] Table 9.2.26-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00010" | Server → client | TS 24.581 [88] 9.2.2.1-3 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server or the transmission control participant requesting the end of reception of the media from another user. | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | "00000110" | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **User ID** | User-id=URI | The User ID field is used to carry the identity of the user who is requesting the reception of the media<br><br>Note: If the length of the <User ID> value is not (2 + multiple of 4) bytes User ID field shall be padded to (2 + multiple of 4) bytes. The value of the padding bytes is to zero. The padding bytes are ignored by the receiver. | TS 24.581 [88] 9.2.3.8 | |
| **SSRC of Transmitter** | A random 32-bit number that is required to be globally unique within | The SSRC of transmitter field carries | TS 24.581 [88] 9.2.3.16 RFC 3550 [3], | |

| Derivation Path: TS 24.581 [88] Table 9.2.26-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | an RTP session | the SSRC of the user transmitting the media. | Appendix 6 shows how to generate a random 32-bit identifier | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |
| **Transmission Indicator** | "00001101" | The Transmission Indicator contains additional information about a received transmission control message.<br><br>The <Transmission Indicator field ID> value is a binary value and is set according to table 9.2.3.1-1.<br>The <Transmission Indicator Length> value is a binary value and has the value '2'.<br>The <Transmission Indicator> value is a 16 bit bit-map. When set to 1 these meanings apply:<br><br>A = Normal call<br>B = Broadcast group call<br>C = System call<br>D = Emergency call<br>E = Imminent peril call | TS 24.581 [88] 9.2.3.11 | |
| Transmission Indicator field ID | An 8-bit binary value set according to TS 24.581 [88] 9.2.3.1-1. | Uniquely identifies an instance of the Transmission Indicator Field | TS 24.581 [88] 9.2.3.1-1-1 | |
| Transmission Indicator Length | "00000010" | An 8-bit binary value (2 in binary) | TS 24.581 [88] 9.2.3.1-1-1 | |

### 5.5.11.3.4 Media Reception End Response

**Table: 5.5.11.3.4-1 Media Reception End Response**

| Derivation Path: TS 24.581 [88] Table 9.2.27-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| **Subtype** | "00011" | Server → client | TS 24.581 [88] 9.2.2.1-3 | |
| **SSRC** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC field carries the SSRC of the transmission control server or the transmission control participant requesting the end of reception of | RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |

| Derivation Path: TS 24.581 [88] Table 9.2.27-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | the media from another user. | | |
| SSRC Field ID | 8-bit binary value | Uniquely identifies the instance of the SSRC of the user transmitting the media | | TS 24.581 [88] 9.2.3.16, Table 9.2.3.1-1 |
| SSRC length | “00000110” | 8-bit binary value | | |
| SSRC value | 16-bit binary value | Specifies the total length of the SSRC Field (?) | RFC 3550[3] | |
| **SSRC of Transmitter** | A random 32-bit number that is required to be globally unique within an RTP session | The SSRC of transmitter field carries the SSRC of the user transmitting the media. | TS 24.581 [88] 9.2.3.16 RFC 3550 [3], Appendix 6 shows how to generate a random 32-bit identifier | |
| **Media ID** | | The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex. | TS 24.581 [88] 9.2.3.x | |

### 5.5.11.3.5 Transmission Control Ack

**Table: 5.5.11.3.5-1 Transmission Control Ack**

| Derivation Path: TS 24.581 [88] Table 9.2.31-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| Subtype | “00100” | | | |
| SSRC | The SSRC of the message sender | The SSRC of the Transmission Control server for on-network and transmission arbitrator for off-network.<br><br>Notation in accordance with subclause 5.5.6.1. Coded as specified in IETF RFC 3550 [76]. | | |
| name | “MCV2” | Transmission Control messages sent by the Transmission Control Server and Transmission Control Participant. | | |
| Source | | | | |
| Source | "2" | The controlling MCVideo function is the source | | |
| Message Type | | | | |
| Message Type | "10100" | Transmission Control Ack message for Transmission Release message which requested acknowledgment | | |
| Length | | The length field in the RTCP header is the length of the packet in 32-bit words, not counting the first 32-bit | | |

| Derivation Path: TS 24.581 [88] Table 9.2.31-1 | | | | |
|---|---|---|---|---|
| **Information Element** | **Value/remark** | **Comment** | **Reference** | **Condition** |
| | | word in which the length field resides.<br><br>NOTE: The length field can indicate message size longer than specified in this version of the protocol. This can be the case e.g. if message is of later version of this protocol. | | |
| Application-dependent Data | | Each application specific data field is composed of:<br><br>1. a field ID which is one octet long;<br><br>2. a length value which is:<br><br>- one octet long, if the field ID is less than 192; and<br><br>- two octets long, if the field ID is equal to or greater than 192;<br><br>3. a field value. The length in octets of the field value is indicated in the length value; and<br><br>4. a padding. The padding is zero, one, two, or three octets long. The value of the padding octet(s) is set to zero by sender and ignored by receiver.<br><br>An application specific data field has always a multiple of 4 octets. | | |
| Secure RTCP message part | | RTCP (Real Time Transport Protocol) message part is in specified in clause x and in IETF RFC 3711 [4] | | |

# 5.6 Reference configurations

## 5.6.1 General

The Reference configuration requirements provided in subclause 5.6 specify configuration values that are expected to be pre-configured in the UE before a test is started. The exception to this requirement are tests which verify the communication exchange which allows a MCPTT device to be enabled for the provision of MCPTT cervices e.g. test case 5.1 in TS 36.579-2 [2].

## 5.6.2 Key material for provisioning of End-to-end communication security

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 33.180 [94]. To avoid dynamic allocation of key material before each test case is run, the following keying information needs to be preconfigured in the UE. For convenience, the information is provided in the form of an XML which can be provided/pre-configured in the UE e.g. by a Key Management Server (KMS) as specified in 3GPP TS 33.180 [94].

```
<?xml version="1.0" encoding="UTF-8"?>
<SignedKmsResponse xmlns= "TOBEDEFINED" xmlns:xsi = "http://www.w3.org/2001/XMLSchema-instance"
    xmlns:ds = "http://www.w3.org/2000/09/xmldsig#" xmlns:se = "TOBEDEFINED"
    xsi:schemaLocation = "TOBEDEFINED SE_KmsInterface_XMLSchema.xsd" Id = "xmldoc">
<KmsResponse xmlns= "TOBEDEFINED"  Version = "1.0.0">
  <KmsUri>kms.example.org</KmsUri>
  <UserUri>user@example.org</UserUri>
  <Time>2014-01-26T10:07:14</Time>
  <KmsId>KMSProvider12345</KmsId>
  <ClientReqUrl>http://kms.example.org/keymanagement/identity/v1/keyprov</ClientReqUrl>
  <KmsMessage>
    <KmsKeyProv Version = "1.0.0" xsi:type = "se:KmsKeyProvTkType">
      <KmsKeySet Version = "1.1.0">
        <KmsUri>kms.example.org</KmsUri>
        <CertUri>cert1.kms.example.org</CertUri>
        <Issuer>www.example.org</Issuer>
        <UserUri>user@example.org</UserUri>
        <UserID>0123456789ABCDEF0123456789ABCDEF</UserID>
        <ValidFrom>2017-07-31T17:00:00</ValidFrom>
        <ValidTo>2018-07-31T16:59:59</ValidTo>
        <KeyPeriodNo>3710502000</KeyPeriodNo>
        <Revoked>false</Revoked>
        <UserDecryptKey xsi:type = "se:EncKeyContentType">
          <EncryptedKey xmlns = "http://www.w3.org/2001/04/xmlenc#">
            <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#kw-aes256"/>
            <ds:KeyInfo>
              <ds:KeyName>tk.12.user@example.org</KeyName>
            </ds:KeyInfo>
            <CipherData>
              <CipherValue>DEADBEEF</CipherValue>
            </CipherData>
          </EncryptedKey>
        </UserDecryptKey>
        <UserSigningKeySSK xsi:type = "se:EncKeyContentType">
          <EncryptedKey xmlns = "http://www.w3.org/2001/04/xmlenc#">
            <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#kw-aes256"/>
            <ds:KeyInfo>
              <ds:KeyName>tk.12.user@example.org</KeyName>
            </ds:KeyInfo>
            <CipherData>
              <CipherValue>DEADBEEF</CipherValue>
            </CipherData>
        </EncryptedKey>
        </UserSigningKeySSK>
        <UserPubTokenPVT xsi:type = "se:EncKeyContentType">
          <EncryptedKey xmlns = "http://www.w3.org/2001/04/xmlenc#">
            <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#kw-aes256"/>
            <ds:KeyInfo>
              <ds:KeyName>tk.12.user@example.org</KeyName>
            </ds:KeyInfo>
            <CipherData>
              <CipherValue>DEADBEEF</CipherValue>
            </CipherData>
          </EncryptedKey>
        </UserPubTokenPVT>
      </KmsKeySet>
      <NewTransportKey xmlns= "TOBEDEFINED">
            <EncryptedKey xmlns="http://www.w3.org/2001/04/xmlenc#"
Type="http://www.w3.org/2001/04/xmlenc#EncryptedKey">
              <EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#kw-aes256"/>
              <ds:KeyInfo>
                <ds:KeyName>tk.12.user@example.org</KeyName>
              </ds:KeyInfo>
              <CipherData>
                <CipherValue>DEADBEEF</CipherValue>
              </CipherData>
              <CarriedKeyName>tk.13.user@example.org</CarriedKeyName>
            </EncryptedKey>
```

```
          </NewTransportKey>
    </KmsKeyProv>
  </KmsMessage>
</KmsResponse>
<Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
    <SignedInfo>
      <CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/>
      <SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#hmac-sha256">
        <HMACOutputLength>128</HMACOutputLength>
      </SignatureMethod>
      <Reference URI="#xmldoc">
        <DigestMethod Algorithm="http://www.w3.org/2001/04/xmlenc#sha256"/>
        <DigestValue>nnnn</DigestValue>
      </Reference>
    </SignedInfo>
    <SignatureValue>DEADBEEF</SignatureValue>
    <KeyInfo>
      <KeyName>tk.12.user@example.org</KeyName>
    </KeyInfo>
  </Signature>
</SignedKmsResponse>
```

## 5.6.3 XML schema for MCPTT location information

```
From TS 24.379 clause F.3.2:
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:mcpttloc="urn:3gpp:ns:mcpttLocationInfo:1.0"
targetNamespace="urn:3gpp:ns:mcpttLocationInfo:1.0" elementFormDefault="qualified"
attributeFormDefault="unqualified"
xmlns:xenc="http://www.w3.org/2001/04/xmlenc#">

    <xs:import namespace="http://www.w3.org/2001/04/xmlenc#"/>

    <xs:element name="location-info" id="loc">
        <xs:annotation>
            <xs:documentation>Root element, contains all information related to location
configuration, location request and location reporting for the MCPTT service</xs:documentation>
        </xs:annotation>
        <xs:complexType>
            <xs:choice>
                <xs:element name="Configuration" type="mcpttloc:tConfigurationType"/>
                <xs:element name="Request" type="mcpttloc:tRequestType"/>
                <xs:element name="Report" type="mcpttloc:tReportType"/>
                <xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
            </xs:choice>
            <xs:anyAttribute namespace="##any" processContents="lax"/>
        </xs:complexType>
    </xs:element>
    <xs:complexType name="tConfigurationType">
        <xs:sequence>
            <xs:element name="NonEmergencyLocationInformation"
type="mcpttloc:tRequestedLocationType" minOccurs="0"/>
            <xs:element name="EmergencyLocationInformation" type="mcpttloc:tRequestedLocationType"
minOccurs="0"/>
            <xs:element name="TriggeringCriteria" type="mcpttloc:TriggeringCriteriaType"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:attribute name="ConfigScope">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="Full"/>
                    <xs:enumeration value="Update"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:attribute>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tRequestType">
        <xs:complexContent>
            <xs:extension base="mcpttloc:tEmptyType">
                <xs:attribute name="RequestId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:complexContent>
```

```
    </xs:complexType>
    <xs:complexType name="tReportType">
        <xs:sequence>
            <xs:element name="TriggerId" type="xs:string" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="CurrentLocation" type="mcpttloc:tCurrentLocationType"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:attribute name="ReportID" type="xs:string" use="optional"/>
        <xs:attribute name="ReportType" use="required">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:enumeration value="Emergency"/>
                    <xs:enumeration value="NonEmergency"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:attribute>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="TriggeringCriteriaType">
        <xs:sequence>
            <xs:element name="CellChange" type="mcpttloc:tCellChange" minOccurs="0"/>
            <xs:element name="TrackingAreaChange" type="mcpttloc:tTrackingAreaChangeType"
minOccurs="0"/>
            <xs:element name="PlmnChange" type="mcpttloc:tPlmnChangeType" minOccurs="0"/>
            <xs:element name="MbmsSaChange" type="mcpttloc:tMbmsSaChangeType" minOccurs="0"/>
            <xs:element name="MbsfnAreaChange" type="mcpttloc:tMbsfnAreaChangeType" minOccurs="0"/>
            <xs:element name="PeriodicReport" type="mcpttloc:tIntegerAttributeType" minOccurs="0"/>
            <xs:element name="TravelledDistance" type="mcpttloc:tIntegerAttributeType"
minOccurs="0"/>
            <xs:element name="McpttSignallingEvent" type="mcpttloc:tSignallingEventType"
minOccurs="0"/>
            <xs:element name="GeographicalAreaChange" type="mcpttloc:tGeographicalAreaChange"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tCellChange">
        <xs:sequence>
            <xs:element name="AnyCellChange" type="mcpttloc:tEmptyTypeAttribute" minOccurs="0"/>
            <xs:element name="EnterSpecificCell" type="mcpttloc:tSpecificCellType" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:element name="ExitSpecificCell" type="mcpttloc:tSpecificCellType" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tEmptyType"/>
    <xs:simpleType name="tEcgi">
        <xs:restriction base="xs:string">
            <xs:pattern value="\d{3}\d{3}[0-1]{28}"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tSpecificCellType">
        <xs:simpleContent>
            <xs:extension base="mcpttloc:tEcgi">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tEmptyTypeAttribute">
        <xs:complexContent>
            <xs:extension base="mcpttloc:tEmptyType">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="tTrackingAreaChangeType">
        <xs:sequence>
            <xs:element name="AnyTrackingAreaChange" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="EnterSpecificTrackingArea" type="mcpttloc:tTrackingAreaIdentity"
minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="ExitSpecificTrackingArea" type="mcpttloc:tTrackingAreaIdentity"
minOccurs="0" maxOccurs="unbounded"/>
```

```
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:simpleType name="tTrackingAreaIdentityFormat">
        <xs:restriction base="xs:string">
            <xs:pattern value="\d{3}\d{3}[0-1]{16}"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tTrackingAreaIdentity">
        <xs:simpleContent>
            <xs:extension base="mcpttloc:tTrackingAreaIdentityFormat">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tPlmnChangeType">
        <xs:sequence>
            <xs:element name="AnyPlmnChange" type="mcpttloc:tEmptyTypeAttribute" minOccurs="0"/>
            <xs:element name="EnterSpecificPlmn" type="mcpttloc:tPlmnIdentity" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:element name="ExitSpecificPlmn" type="mcpttloc:tPlmnIdentity" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:simpleType name="tPlmnIdentityFormat">
        <xs:restriction base="xs:string">
            <xs:pattern value="\d{3}\d{3}"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tPlmnIdentity">
        <xs:simpleContent>
            <xs:extension base="mcpttloc:tPlmnIdentityFormat">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tMbmsSaChangeType">
        <xs:sequence>
            <xs:element name="AnyMbmsSaChange" type="mcpttloc:tEmptyTypeAttribute" minOccurs="0"/>
            <xs:element name="EnterSpecificMbmsSa" type="mcpttloc:tMbmsSaIdentity" minOccurs="0"/>
            <xs:element name="ExitSpecificMbmsSa" type="mcpttloc:tMbmsSaIdentity" minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:simpleType name="tMbmsSaIdentityFormat">
        <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
            <xs:maxInclusive value="65535"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tMbmsSaIdentity">
        <xs:simpleContent>
            <xs:extension base="mcpttloc:tMbmsSaIdentityFormat">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tMbsfnAreaChangeType">
        <xs:sequence>
            <xs:element name="EnterSpecificMbsfnArea" type="mcpttloc:tMbsfnAreaIdentity"
minOccurs="0"/>
            <xs:element name="ExitSpecificMbsfnArea" type="mcpttloc:tMbsfnAreaIdentity"
minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:simpleType name="tMbsfnAreaIdentityFormat">
        <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
```

```
            <xs:maxInclusive value="255"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tMbsfnAreaIdentity">
        <xs:simpleContent>
            <xs:extension base="mcpttloc:tMbsfnAreaIdentityFormat">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tIntegerAttributeType">
        <xs:simpleContent>
            <xs:extension base="xs:integer">
                <xs:attribute name="TriggerId" type="xs:string" use="required"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="tTravelledDistanceType">
        <xs:sequence>
            <xs:element name="TravelledDistance" type="xs:positiveInteger"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tSignallingEventType">
        <xs:sequence>
            <xs:element name="InitialLogOn" type="mcpttloc:tEmptyTypeAttribute" minOccurs="0"/>
            <xs:element name="GroupCallNonEmergency" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="PrivateCallNonEmergency" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="LocationConfigurationReceived" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type=" mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tEmergencyEventType">
        <xs:sequence>
            <xs:element name="GroupCallEmergency" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="GroupCallImminentPeril" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="PrivateCallEmergency" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:element name="InitiateEmergencyAlert" type="mcpttloc:tEmptyTypeAttribute"
minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tRequestedLocationType">
        <xs:sequence>
            <xs:element name="ServingEcgi" type="mcpttloc:tEmptyType" minOccurs="0"/>
            <xs:element name="NeighbouringEcgi" type="mcpttloc:tEmptyType" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:element name="MbmsSaId" type="mcpttloc:tEmptyType" minOccurs="0"/>
            <xs:element name="MbsfnArea" type="mcpttloc:tEmptyType" minOccurs="0"/>
            <xs:element name="GeographicalCordinate" type="mcpttloc:tEmptyType" minOccurs="0"/>
            <xs:element name="minimumIntervalLength" type="xs:positiveInteger"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:complexType name="tCurrentLocationType">
        <xs:sequence>
            <xs:element name="CurrentServingEcgi" type="mcpttloc:tLocationType" minOccurs="0"/>
            <xs:element name="NeighbouringEcgi" type="mcpttloc:tLocationType" minOccurs="0"
maxOccurs="unbounded"/>
            <xs:element name="MbmsSaId" type="mcpttloc:tLocationType" minOccurs="0"/>
            <xs:element name="MbsfnArea" type="mcpttloc:tLocationType" minOccurs="0"/>
            <xs:element name="CurrentCoordinate" type="mcpttloc:tPointCoordinate" minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
```

```
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:simpleType name="protectionType">
        <xs:restriction base="xs:string">
            <xs:enumeration value="Normal"/>
            <xs:enumeration value="Encrypted"/>
        </xs:restriction>
    </xs:simpleType>

    <xs:complexType name="tLocationType">
        <xs:choice minOccurs="1" maxOccurs="1">
            <xs:element name="Ecgi" type="mcpttloc:tEcgi" minOccurs="0"/>
            <xs:element name="SaId" type="mcpttloc:tMbmsSaIdentity" minOccurs="0"/>
            <xs:element name="MbsfnAreaId" type="mcpttloc:tMbsfnAreaIdentity" minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:choice>
        <xs:attribute name="type" type="protectionType"/>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:complexType name="tGeographicalAreaChange">
        <xs:sequence>
            <xs:element name="AnyAreaChange" type="mcpttloc:tEmptyTypeAttribute" minOccurs="0"/>
            <xs:element name="EnterSpecificAreaType" type="mcpttloc:tSpecificAreaType"
minOccurs="0"/>
            <xs:element name="ExitSpecificAreaType" type="mcpttloc:tSpecificAreaType"
minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tSpecificAreaType">
        <xs:sequence>
            <xs:element name="GeographicalArea" type="mcpttloc:tGeographicalAreaDef"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:attribute name="TriggerId" type="xs:string" use="required"/>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:complexType name="tPointCoordinate">
        <xs:sequence>
            <xs:element name="longitude" type="mcpttloc:tCoordinateType"/>
            <xs:element name="latitude" type="mcpttloc:tCoordinateType"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:complexType name="tCoordinateType">
        <xs:choice minOccurs="1" maxOccurs="1">
            <xs:element name="threebytes" type="mcpttloc:tThreeByteType" minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:choice>
        <xs:attribute name="type" type="protectionType"/>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <xs:simpleType name="tThreeByteType">
        <xs:restriction base="xs:integer">
            <xs:minInclusive value="0"/>
            <xs:maxInclusive value="16777215"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="tGeographicalAreaDef">
        <xs:sequence>
            <xs:element name="PolygonArea" type="mcpttloc:tPolygonAreaType" minOccurs="0"/>
            <xs:element name="EllipsoidArcArea" type="mcpttloc:tEllipsoidArcType" minOccurs="0"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
```

```
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tPolygonAreaType">
        <xs:sequence>
            <xs:element name="Corner" type="mcpttloc:tPointCoordinate" minOccurs="3"
maxOccurs="15"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="tEllipsoidArcType">
        <xs:sequence>
            <xs:element name="Center" type="mcpttloc:tPointCoordinate"/>
            <xs:element name="Radius" type="xs:nonNegativeInteger"/>
            <xs:element name="OffsetAngle" type="xs:unsignedByte"/>
            <xs:element name="IncludedAngle" type="xs:unsignedByte"/>
            <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="anyExt" type="mcpttloc:anyExtType" minOccurs="0"/>
        </xs:sequence>
        <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>
    <xs:complexType name="anyExtType">
        <xs:sequence>
            <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
</xs:schema>
```

# Annex A (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2017-02 | R5#74 | R5-171298 | - | - | - | Introduction of TS 36.579-1. | 0.0.1 |
| 2017-05 | R5#75 | R5-172100 | - | - | - | Introduction of default message content for some media control messages, some generic procedures from<br>R5-172078 Default MCPTT media plane control messages<br>R5-172079 Generic MCPTT procedures | 0.0.2 |
| 2017-06 | RAN5#75 | - | - | - | - | lifted to v0.1.0 because of technical contents | 0.1.0 |
| 2017-08 | RAN5#76 | R5-173766 | - | - | - | Implemented approved:<br>R5-173702 'Various updates of MCPTT TS 36579-1'<br>R5-173703 'Update of MCPTT generic procedures'<br>R5-173704 'New Generic procedures ProSe and MCPTT'<br>R5-173705 'Update default media plane control messages'<br>R5-173706 'Update of MCPTT Default MCPTT call control Off-network messages'<br>R5-173707 'Update of MCPTT MIKEY-SAKKE I.MESSAGE'<br>R5-173766 'Update of TS 36.579-1 to version 0.2.0'<br>R5-174599 'SIP message defaults for 36.579-1'<br>R5-174600 'MCPTT Off-Network Group Call Signaling Message Defaults' | 0.2.0 |
| 2017-12 | RAN5#77 | R5-176835 | - | - | - | Implemented approved:<br>R5-177000 "Update of SIP Message Defaults for MCPTT"<br>R5-176345 "Update of Specific SIP messages in Generic procedures"<br>R5-177001 "Update of Generic procedures for SIP registration"<br>R5-176347 "New Generic Procedure for ProSe group calls Announcing-Discoveree procedure for group member discovery"<br>R5-176348 "New Generic Procedure for ProSe group calls Monitoring/Discoverer procedure for group member discovery"<br>R5-177002 "Update with UE Configuration Defaults"<br>- References updates | 0.3.0 |
| 2017-12 | RAN#78 | RP-172182 | - | - | - | Draft version for information purposes to the RAN Plneary | 1.0.0 |
| 2018-03 | RAN5#78 | R5-180684 | - | - | - | Implemented approved:<br>R5-180534 "Update of Section 5.5.2 and 5.5.3 for TS 36.579-1"<br>R5-180535 "Update of Section 5.5.5 for TS 36.579-1"<br>R5-180536 "Update of Section 5.5.6 for TS 36.579-1"<br>R5-181241 "Update of Section 5.5.9 TS 36.579-1"<br>R5-180633 "Update of Default HTTP message and other information elements"<br>R5-180634 "Update of Default MCPTT configuration management messages"<br>R5-180635 "New Generic procedures for MCPTT Authorization/Configuration and Key Generation"<br>R5-18063 "New Generic procedures for MCPTT communication in E-UTRA / Change of cells"<br>R5-180637 "Generic Test Procedure for MCPTT communication over MBMS"<br>R5-180638 "Various updates to 36579-1" | 1.1.0 |
| 2018-03 | RAN#79 | RP-180126 | - | - | - | 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 | R5-185084 | 0009 | - | F | Update to TLS setup | 13.2.0 |
| 2018-09 | RAN#81 | R5-185122 | 0007 | 1 | F | Corrections to MCPTT Authorization | 13.2.0 |
| 2018-09 | RAN#81 | R5-184685 | 0008 | - | F | Update of default message contents for new Rel-14 TCs for Private Call Call-Back and Ambient listening call | 14.0.0 |
| 2018-12 | RAN#82 | R5-186878 | 0010 | - | F | Correction to Generic Test Procedure for MCPTT pre-established session establishment CO | 14.1.0 |
| 2018-12 | RAN#82 | R5-186879 | 0011 | - | F | Editorial update of the default SDP and Resource-list Messages | 14.1.0 |
| 2018-12 | RAN#82 | R5-186880 | 0012 | - | F | Update of default MCPTT media plane control messages and other information elements to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-186881 | 0013 | - | F | Update of XML schema for MCPTT location information to reflect latest Rel-13 core specs | 14.1.0 |
| 2018-12 | RAN#82 | R5-187709 | 0014 | 1 | F | Corrections to clause 5.5.9 of 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187710 | 0015 | 1 | F | Corrections to clause 5.5.7.1 of 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187711 | 0016 | 1 | F | Update for Resource-lists in 36.579-1 | 14.1.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2018-12 | RAN#82 | R5-187712 | 0017 | 1 | F | Correction to Table 5.5.1-1 in 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187713 | 0018 | 1 | F | Correction to Table 5.5.4.10.1-1 in 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187714 | 0019 | 1 | F | Correction to Table 5.5.4.2-1 in 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187715 | 0020 | 1 | F | Correction to SIP NOTIFY message in 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187716 | 0021 | 1 | F | Correction to SIP SUBSCRIBE message in 36.579-1 | 14.1.0 |
| 2018-12 | RAN#82 | R5-187717 | 0022 | 1 | F | Update of Generic Test 5.3.2 in 36.579-1 | 14.1.0 |
| 2019-03 | RAN#83 | R5-191210 | 0023 | - | F | Correction of default contents in SIP INVITE from the UE | 14.2.0 |
| 2019-03 | RAN#83 | R5-191902 | 0024 | - | F | Update to MCPTT floor control default messages | 14.2.0 |
| 2019-03 | RAN#83 | R5-192155 | 0025 | - | F | Update 36.579-1 Section 4.2 and 4.3 | 14.2.0 |
| 2019-03 | RAN#83 | R5-192156 | 0026 | - | F | Update 36.579-1 Delete subclauses inside the present spec | 14.2.0 |
| 2019-03 | RAN#83 | R5-192157 | 0027 | - | F | Update 36.579-1 Blue text removal | 14.2.0 |
| 2019-06 | RAN#84 | R5-194001 | 0028 | - | F | Correction of default contents in the SIP INVITE from the UE | 14.3.0 |
| 2019-06 | RAN#84 | R5-194665 | 0030 | - | F | Typo for MCPTT in 36.579-1 | 14.3.0 |
| 2019-06 | RAN#84 | R5-195216 | 0029 | 1 | F | Update of UE registration procedure for location info configuration | 14.3.0 |
| 2019-06 | RAN#84 | R5-195217 | 0031 | 1 | F | References and derivation path updates for SIP messages | 14.3.0 |
| 2019-09 | RAN#85 | R5-196773 | 0045 | - | F | Updates to conditions Table 5.5.1-1 | 14.4.0 |
| 2019-09 | RAN#85 | R5-196983 | 0046 | - | F | Correction of SIP messages | 14.4.0 |
| 2019-09 | RAN#85 | R5-197133 | 0044 | 1 | F | Update for MCVideo and MCData services | 14.4.0 |
| 2019-09 | RAN#85 | R5-197229 | 0038 | 1 | F | Correction of default contents in the SIP REGISTER | 14.4.0 |
| 2019-09 | RAN#85 | R5-197293 | 0043 | 2 | F | Update to Generic Procedure 5.3.3 | 14.4.0 |
| 2019-09 | RAN#85 | R5-197294 | 0047 | - | F | Correction and addition of references or values and editorial comments | 14.4.0 |
| 2019-09 | RAN#85 | R5-197295 | 0041 | 2 | F | Corrections to MCPTT UE registration procedures | 14.4.0 |
| 2019-12 | RAN#86 | R5-198159 | 0050 | | F | Corrections to SIP signalling for MCPTT CO and CT communication procedures | 14.5.0 |
| 2019-12 | RAN#86 | R5-199043 | 0049 | 1 | F | Correction to default HTTP messages | 14.5.0 |
| 2019-12 | RAN#86 | R5-199044 | 0051 | 1 | F | Corrections to MCPTT UE registration procedures | 14.5.0 |
| 2019-12 | RAN#86 | R5-199045 | 0052 | 1 | F | Additions of further references | 14.5.0 |
| 2019-12 | RAN#86 | R5-199046 | 0053 | 1 | F | Corrections related to MIKEY protocol | 14.5.0 |
| 2019-12 | RAN#86 | R5-199047 | 0054 | 1 | F | Correction to default messages for MCPTT group management and configuration management | 14.5.0 |
| 2019-12 | RAN#86 | R5-199048 | 0055 | 1 | F | Correction of default SDP message and other information elements | 14.5.0 |
| 2019-12 | RAN#86 | R5-199051 | 0056 | 1 | F | SDP Default for MCVideo and MCData | 14.5.0 |
| 2019-12 | RAN#86 | R5-199052 | 0058 | 1 | F | Adding MCVideo Transmission Control Messages | 14.5.0 |
| 2019-12 | RAN#86 | R5-199053 | 0060 | 1 | F | Updates TS 33.179 references to TS 33.180 | 14.5.0 |
| 2019-12 | RAN#86 | R5-199077 | 0048 | 2 | F | Correction to default SIP messages | 14.5.0 |

# History

| Document history | | |
|---|---|---|
| V14.0.0 | October 2018 | Publication |
| V14.1.0 | December 2018 | Publication |
| V14.2.0 | May 2019 | Publication |
| V14.3.0 | July 2019 | Publication |
| V14.4.0 | October 2019 | Publication |
| V14.5.0 | January 2020 | Publication |