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**Mission Critical (MC) services;
Mission Critical Data (MCData) Application Server (AS)
Protocol conformance specification for
server-to-server interface including
InterWorking Function (IWF) to non-3GPP systems;
Part 1: Test structure, configurations,
conformance requirement and test purposes**

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee TETRA and Critical Communications Evolution (TCCE).

The present document is based on 3GPP TS 36.579-9 [i.10] produced by the 3rd Generation Partnership Project (3GPP).

The present document is part 1 of a multi-part deliverable covering the Mission Critical (MC) services; Mission Critical Data (MCData) Application Server (AS) Protocol conformance specification for server-to-server interface including InterWorking Function (IWF) to non-3GPP systems, as identified below:

Part 1: **"Test structure, configurations, conformance requirement and test purposes";**

Part 2: **"Test Applicability and Implementation Conformance Statement (ICS) pro forma specification".**

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.

Introduction

The ETSI Technical Specification used as the reference document for this one is part 9 of a multi-part deliverable covering conformance test specification for Mission Critical Services over LTE consisting of:

- ETSI TS 136 579-1 [1]: "LTE; Mission Critical (MC) services over LTE; Part 1: Common test environment (3GPP TS 36.579-1)";
- ETSI TS 136 579-2 [i.4]: "LTE; Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-2)";
- ETSI TS 136 579-3 [i.2]: "LTE; Mission Critical (MC) services over LTE; Part 3: Mission Critical Push To Talk (MCPTT) Server Application conformance specification (3GPP TS 36.579-3)";
- ETSI TS 136 579-4 [2]: "LTE; Mission Critical (MC) services over LTE; Part 4: Test Applicability and Implementation Conformance Statement (ICS) proforma specification (3GPP TS 36.579-4)";
- ETSI TS 136 579-5 [i.3]: "LTE; Mission Critical (MC) services over LTE; Part 5: Abstract test suite (ATS) (3GPP TS 36.579-5)";
- ETSI TS 136 579-6 [i.5]: "LTE; Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-6)";
- ETSI TS 136 579-7 [6]: "LTE; Mission Critical (MC) services over LTE; Part 7: Mission Critical Data (MCData) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-7)";
- 3GPP TS 36.579-8 [i.9]: "Mission Critical (MC) services over LTE; Part 8: Mission Critical Video (MCVideo) Server Application conformance specification";
- **3GPP TS 36.579-9 [i.10]: "Mission Critical (MC) services over LTE; Part 9: Mission Critical Data (MCData) Server Application conformance specification".**

1 Scope

The present document specifies the protocol conformance testing for testing a MCDData Server for compliance to the Mission Critical Data (MCDData) over LTE protocol requirements defined by 3GPP. The present document addresses only MCDData Server-Server communication scenarios. It does not cover e.g. MCDData Server-EPS, MCDData Server-SIP Core, etc. scenarios which involve interfaces which implementation may widely vary.

In particular the present specification contains:

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

The present document is valid for MCDData Servers implemented according to 3GPP releases starting from Release 14 up to the Release indicated on the cover page of the present document.

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

- default setting of the test parameters ETSI TS 136 579-1 [1] (3GPP TS 36.579-1);
- Implementation Conformance Statement (ICS) ETSI TS 136 579-4 [2] (3GPP TS 36.579-4) and Implementation extra Information for Testing (IXIT) ETSI TS 136 579-5 [i.3] (3GPP TS 36.579-5);
- the applicability of each test case ETSI TS 136 579-4 [2] (3GPP TS 36.579-4).

The present document does not specify the protocol conformance testing for the EPS (LTE) bearers which carry the MCDData data sent or received by the MCDData Server. The specification of such testing is out of the scope of RAN5.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found in the [ETSI docbox](#).

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The following referenced documents are necessary for the application of the present document.

- [1] [ETSI TS 136 579-1](#): "LTE; Mission Critical (MC) services over LTE; Part 1: Common test environment (3GPP TS 36.579-1)".
- [2] [ETSI TS 136 579-4](#): "LTE; Mission Critical (MC) services over LTE; Part 4: Test Applicability and Implementation Conformance Statement (ICS) proforma specification (3GPP TS 36.579-4)".
- [3] [ETSI TS 124 484](#): "LTE; Mission Critical Services (MCS) configuration management; Protocol specification (3GPP TS 24.484)".

- [4] [ETSI TS 136 509](#): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Special conformance testing functions for User Equipment (UE) (3GPP TS 36.509)".
- [5] [ETSI TS 124 282](#): "LTE; Mission Critical Data (MCData) signalling control; Protocol specification (3GPP TS 24.282)".
- [6] [ETSI TS 136 579-7](#): "LTE; Mission Critical (MC) services over LTE; Part 7: Mission Critical Data (MCData) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-7)".
- [7] [IETF RFC 3261 \(June 2002\)](#): "SIP: Session Initiation Protocol".
- [8] [IETF RFC 5031 \(January 2008\)](#): "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".
- [9] [IETF RFC 4028 \(April 2005\)](#): "Session Timers in the Session Initiation Protocol (SIP)".
- [10] [IETF RFC 4975 \(September 2007\)](#): "The Message Session Relay Protocol (MSRP)".
- [11] [IETF RFC 6665 \(July 2012\)](#): "SIP-Specific Event Notification".
- [12] [IETF RFC 4145 \(September 2005\)](#): "TCP-Based Media Transport in the Session Description Protocol (SDP)".
- [13] [IETF RFC 3325 \(November 2002\)](#): "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks".
- [14] [IETF RFC 3863 \(August 2004\)](#): "Presence Information Data Format (PIDF)".
- [15] [ETSI TS 104 149-1](#): "Mission Critical (MC) services; Mission Critical Data (MCData) Application Server (AS) Protocol conformance specification for server-to-client interface; Part 1: Test structure, configurations, conformance requirement and test purposes".
- [16] [ETSI TS 124 582](#): "LTE; Mission Critical Data (MCData) media plane control; Protocol specification (3GPP TS 24.582)".
- [17] [ETSI TS 129 582](#): "LTE; 5G; Mission Critical Data (MCData) interworking with Land Mobile Radio (LMR) systems; Stage 3 (3GPP TS 29.582)".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

- [i.1] ETSI TR 121 905: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Vocabulary for 3GPP Specifications (3GPP TR 21.905)".
- [i.2] [ETSI TS 136 579-3](#): "LTE; Mission Critical (MC) services over LTE; Part 3: Mission Critical Push To Talk (MCPTT) Server Application conformance specification (3GPP TS 36.579-3)".
- [i.3] [ETSI TS 136 579-5](#): "LTE; Mission Critical (MC) services over LTE; Part 5: Abstract test suite (ATS) (3GPP TS 36.579-5)".
- [i.4] [ETSI TS 136 579-2](#): "LTE; Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-2)".

- [i.5] [ETSI TS 136 579-6](#): "LTE; Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification (3GPP TS 36.579-6)".
- [i.6] [ETSI TS 133 180](#): "LTE; Security of the Mission Critical (MC) service (3GPP TS 33.180)".
- [i.7] [ETSI TS 123 282](#): "LTE; Functional architecture and information flows to support Mission Critical Data (MCDData); Stage 2 (3GPP TS 23.282)".
- [i.8] [ETSI TS 122 282](#): "LTE; 5G; Mission Critical (MC) data (3GPP TS 22.282)".
- [i.9] 3GPP TS 36.579-8: "Mission Critical (MC) services over LTE; Part 8: Mission Critical Video (MCVideo) Server Application conformance specification".
- [i.10] 3GPP TS 36.579-9: "Mission Critical (MC) services over LTE; Part 9: Mission Critical Data (MCDData) Server Application conformance specification".

3 Definitions of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TR 121 905 [i.1] (3GPP TR 21.905) and the following apply:

NOTE: A term defined in the present document takes precedence over the definition of the same term, if any, in ETSI TR 121 905 [i.1] (3GPP TR 21.905).

For the purpose of the present document, the following terms given in ETSI TS 123 282 [i.7] (3GPP TS 23.282) apply:

- Auto-receive
- Conversation identifier
- Data stream
- FD disposition
- MCDData client
- MCDData group
- MCDData group affiliation
- MCDData group communication
- MCDData group de-affiliation
- MCDData ID
- MCDData server
- MCDData service
- MCDData UE
- MCDData user
- Reception control
- Reply identifier
- SDS data

- SDS disposition
- Standalone communication
- Transaction identifier
- Transmission control

For the purpose of the present document, the following terms given in ETSI TS 122 282 [i.8] (3GPP TS 22.282) apply:

- Conversation
- Conversation ID
- MCDATA Conversation Hang Time
- MCDATA System

For the purpose of the present document, the following terms given in ETSI TS 133 180 [i.6] (3GPP TS 33.180) apply:

- Client Server Key (CSK)
- Private Call Key (PCK)
- Signalling Protection Key (SPK)
- XML Protection Key (XPK)

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TR 121 905 [i.1] (3GPP TR 21.905) and the following apply:

NOTE: An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in ETSI TR 121 905 [i.1] (3GPP TR 21.905).

CSK	Client-Server Key
FD	File Distribution
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
IWF	Inter-Working Function
IXIT	Implementation eXtra Information for Testing
LMR	Land Mobile Radio
MC	Mission Critical
MCDATA group ID	MCDATA group Identity
MCDATA	Mission Critical Data
MCPTT	Mission Critical Push To Talk
MCVideo	Mission Critical Video
MIME	Multipurpose Internet Mail Extensions
MSRP	Message Session Relay Protocol
PCK	Private Call Key
PIDF	Presence Information Data Format
SDP	Session Description Protocol
SDS	Short Data Service
SIP	Session Initiation Protocol
SPK	Signalling Protection Key
SS	System Simulator
TP	Test Purpose

TP	Transmission Point
UE	User Equipment
URI	Uniform Resource Identifier
XPk	XML Protection Key

4 General

4.1 Test methodology

4.1.1 Testing of optional functions and procedures

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

A declaration by the MCDData Server supplier (to use the Implementation Conformance Statement (ICS) proforma specified in ETSI TS 136 579-4 [2] (3GPP TS 36.579-4)) is used to determine whether an optional function/procedure has been implemented.

4.1.2 Test interfaces and facilities

Detailed descriptions of the MCDData test interfaces and special facilities for testing are provided in ETSI TS 136 509 [4] (3GPP TS 36.509).

4.2 Implicit testing

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

4.3 Repetition of tests

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

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

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

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

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

When there is no Release indicated for a conformance requirement text, this should be understood either as the Conformance requirements in the latest version of the spec with release = the TC Applicability release (which can be found in ETSI TS 136 579-4 [2] (3GPP TS 36.579-4), Table 4-1: Applicability of tests and additional information for testing, column 'Release'), or, as the Conformance requirements in the latest version of the spec of the release when the feature was introduced to the core specs.

4.5 Reference conditions

The reference environments used by all signalling and protocol tests is specified in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1). Where a test requires an environment that is different, this will be specified in the test itself.

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

4.6 Generic setup procedures

A set of basic generic procedures for MCDATA Client-Server communication are described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1). These procedures will be used in numerous test cases throughout the present document.

5 MCDATA Server - MCDATA Server operation

5.1 Configuration

5.1.1 MCDATA Server - MCDATA Server / Configuration / Group Affiliation / De-Affiliation / Controlling server

5.1.1.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP SUBSCRIBE message from SS-UE1 (MCDATA Client) to
determine the affiliation status of the user }
  then { IUT (MCDATA Server) responds via the SS (MCDATA Server) with a SIP 200 (OK) and sends a
SIP NOTIFY message informing user not affiliated to the group }
}
```

(2)

```
with { SS (MCDATA Server) subscribed to the status of affiliation and the IUT (MCDATA Server) having
provided affiliation status }
ensure that {
  when { SS (MCDATA Server) forwards a SIP PUBLISH message from SS-UE1 (MCDATA Client) requesting
affiliation of user A to group A }
  then { IUT (MCDATA Server) responds via SS (MCDATA Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message to inform the affiliation change }
}
```

(3)

```
with { SS (MCDATA Server) subscribed to the status of affiliation and the IUT (MCDATA Server) having
provided affiliation status }
ensure that {
  when { SS (MCDATA Server) forwards a SIP PUBLISH message from SS-UE1 (MCDATA Client) requesting
de-affiliation of user A from group A }
  then { IUT (MCDATA Server) responds via SS (MCDATA Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message to inform the affiliation change }
}
```

(4)

```

with { SS (MCDData Server) subscribed to the status of affiliation and the IUT (MCDData Server) having
provided affiliation status }
ensure that {
  when { SS (MCDData Server) forwards a SIP SUBSCRIBE message from SS-UE1 (MCDData Client) requesting
to de-subscribe from the affiliation status for user to stop receiving affiliation status updates }
  then { IUT (MCDData Server) responds via SS (MCDData Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message indicating the termination of the subscription }
}

```

5.1.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 8.3.2.6, 8.3.2.7, 8.3.3.3, 8.3.3.4 and 8.3.3.5. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.6]

"The MCDData server shall generate a SIP PUBLISH request according to 3GPP TS 24.229 [5], IETF RFC 3903 [34] and IETF RFC 3856 [39]. In the SIP PUBLISH request, the MCDData server:

- 1) *shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled MCDData group ID;*
- 2) *shall include an application/vnd.3gpp.mcddata-info+xml MIME body. In the application/vnd.3gpp.mcddata-info+xml MIME body, the MCDData server:*
 - a) *shall include the <mcddata-request-uri> element set to the handled MCDData group ID; and*
 - b) *shall include the <mcddata-calling-user-id> element set to the served MCDData ID;*
- 3) *shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];*
- 4) *if sending an affiliation request, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;*

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) *if sending an de-affiliation request, shall set the Expires header field according to IETF RFC 3903 [34], to zero;*
- 6) *shall include an P-Asserted-Identity header field set to the public service identity of the MCDData server according to 3GPP TS 24.229 [5];*
- 7) *shall set the current p-id to a globally unique value;*
- ...
- 10) *shall include an application/pidf+xml MIME body indicating per-group affiliation information constructed according to subclause 8.4.1. The MCDData server shall indicate all served MCDData client IDs, such that:*
 - a) *the affiliation status is set to "affiliating" or "affiliated", and the expiration time has not expired yet in an MCDData group information entry with the MCDData group ID set to the handled MCDData group;*
 - b) *the MCDData group information entry is in the list of the MCDData group information entries of an MCDData client information entry;*
 - c) *the MCDData client information entry has the MCDData client ID set to the served MCDData client ID; and*
 - d) *the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry.*

The MCDData server shall set the <p-id> child element of the <presence> root element to the current p-id.

The MCDData server shall not include the "expires" attribute in the <affiliation> element.

The MCDData server shall send the SIP PUBLISH request according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.7]

"In order to discover whether a served MCDData user was successfully affiliated to a handled MCDData group in the MCDData server owning the handled MCDData group, the MCDData server shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36].

In the SIP SUBSCRIBE request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled MCDData group ID;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled MCDData group ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if the MCDData server wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- 6) shall include an Accept header field containing the application/pidf+xml MIME type; and
- 7) shall include an application/simple-filter+xml MIME body indicating per-user restrictions of presence event package notification information according to subclause 8.4.2, indicating the served MCDData ID.

In order to re-subscribe or de-subscribe, the MCDData server shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36]. In the SIP SUBSCRIBE request, the MCDData server:

- 1) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 2) if the MCDData server wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [36], to zero; and
- 3) shall include an Accept header field containing the application/pidf+xml MIME type.

..."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.3.3]

"Upon receiving a SIP PUBLISH request such that:

- 1) Request-URI of the SIP PUBLISH request contains the public service identity of the controlling MCDData function associated with the served MCDData group;
- 2) the SIP PUBLISH request contains an application/vnd.3gpp.mcdata-info+xml MIME body containing the <mcdata-request-uri> element and the <mcdata-calling-user-id> element;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP PUBLISH request contains the "presence" event type; and

- 5) SIP PUBLISH request contains an application/pidf+xml MIME body indicating per-group affiliation information constructed according to subclause 8.4.1;

then the MCDData server:

- 1) shall identify the served MCDData group ID in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP PUBLISH request;
- 2) shall identify the handled MCDData ID in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP PUBLISH request;
- ...
- 6) shall respond with SIP 200 (OK) response to the SIP PUBLISH request according to 3GPP TS 24.229 [5], IETF RFC 3903 [34]. In the SIP 200 (OK) response, the MCDData server:
 - a) shall set the Expires header field according to IETF RFC 3903 [34], to the selected expiration time;
- 7) if the "entity" attribute of the <presence> element of the application/pidf+xml MIME body of the SIP PUBLISH request is different than the served MCDData group ID, shall not continue with the rest of the steps;
- 8) if the handled MCDData ID is different from the MCDData ID in the "id" attribute of the <tuple> element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request, shall not continue with the rest of the steps;
- 9) shall consider an MCDData group information entry such that:
 - a) the MCDData group information entry is in the list of MCDData group information entries described in subclause 8.3.3.2; and
 - b) the MCDData group ID of the MCDData group information entry is equal to the served MCDData group ID; as the served MCDData group information entry;
- 10) if the selected expiration time is zero:
 - a) shall remove the MCDData user information entry such that:
 - i) the MCDData user information entry is in the list of the MCDData user information entries of the served MCDData group information entry; and
 - ii) the MCDData user information entry has the MCDData ID set to the served MCDData ID;
- 11) if the selected expiration time is not zero:
 - a) shall consider an MCDData user information entry such that:
 - i) the MCDData user information entry is in the list of the MCDData user information entries of the served MCDData group information entry; and
 - ii) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID; as the served MCDData user information entry;
 - b) if the MCDData user information entry does not exist:
 - i) shall insert an MCDData user information entry with the MCDData ID set to the handled MCDData ID into the list of the MCDData user information entries of the served MCDData group information entry; and
 - ii) shall consider the inserted MCDData user information entry as the served MCDData user information entry; and

- c) shall set the following information in the served MCDData user information entry:
 - i) set the MCDData client ID list according to the "client" attributes of the <affiliation> elements of the <status> element of the <tuple> element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request; and
 - ii) set the expiration time according to the selected expiration time;
- 12) shall identify the handled p-id in the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request; and
- 13) shall perform the procedures specified in subclause 8.3.3.5 for the served MCDData group ID."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.3.4]

"Upon receiving a SIP SUBSCRIBE request such that:

- 1) Request-URI of the SIP SUBSCRIBE request contains the public service identity of the controlling MCDData function associated with the served MCDData group;
- 2) the SIP SUBSCRIBE request contains an application/vnd.3gpp.mcddata-info+xml MIME body containing the <mcddata-request-uri> element and the <mcddata-calling-user-id> element;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP SUBSCRIBE request contains the "presence" event type; and
- 5) the SIP SUBSCRIBE request contains an application/simple-filter+xml MIME body indicating per-user restrictions of presence event package notification information according to subclause 8.4.2 indicating the same MCDData ID as in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP SUBSCRIBE request;

then the MCDData server:

- 1) shall identify the served MCDData group ID in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP SUBSCRIBE request;
- 2) shall identify the handled MCDData ID in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP SUBSCRIBE request;
- ...
- 6) shall generate a SIP 200 (OK) response to the SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 6665 [36].

For the duration of the subscription, the MCDData server shall notify subscriber about changes of the information of the served MCDData ID, as described in subclause 8.3.3.5."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.3.5]

"In order to notify the subscriber identified by the handled MCDData ID about changes of the affiliation status of the served MCDData group ID, the MCDData server:

- 1) shall consider an MCDData group information entry such that:
 - a) the MCDData group information entry is in the list of MCDData group information entries described in subclause 8.3.3.2; and
 - b) the MCDData group ID of the MCDData group information entry is equal to the served MCDData group ID;
- 2) shall consider an MCDData user information entry such:
 - a) the MCDData user information entry is in the list of the MCDData user information entries of the served MCDData group information entry; and
 - b) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID;

as the served MCDData user information entry;

- 3) shall generate an application/pidf+xml MIME body indicating per-group affiliation information according to subclause 8.4.1 and the served list of the served MCDData user information entry of the MCDData group information entry with following clarifications:
 - a) the MCDData server shall include the "expires" attribute in the <affiliation> element; and
 - b) if this procedure is invoked by procedure in subclause 8.3.3.3 where the handled p-id was identified, the MCDData server shall set the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request to the handled p-id value; and
- 4) send a SIP NOTIFY request according to 3GPP TS 24.229 [5], and IETF RFC 6665 [36] for the subscription created in subclause 8.3.3.4. In the SIP NOTIFY request, the MCDData server shall include the generated application/pidf+xml MIME body indicating per-group affiliation information."

5.1.1.3 Test description

5.1.1.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server):
 - SS (MCDData Server) provides the participating MCDData function.
- SS-UE1 (MCDData client):
 - Simulated behind the SS (MCDData Server).

IUT:

- IUT (MCDData Server):
 - IUT (MCDData Server) provides the controlling MCDData function.
- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to the SS (MCDData Server).
- The SS-UE1 (MCDData client) is registered and authorized to use the MCDData system.
- Group A is controlled by the controlling MCDData function.
- User A is not configured to be implicitly affiliated to Group A.

5.1.1.3.2 Test procedure sequence

Table 5.1.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCData Server) sends a SIP SUBSCRIBE message request to determine the affiliation status of user A for group A.	<--	SIP SUBSCRIBE	-	-
2	Check: Does the IUT (MCData Server) respond to the SIP SUBSCRIBE message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the IUT (MCData Server) send a SIP NOTIFY message informing user A that is not affiliated to any group?	-->	SIP NOTIFY	1	P
4	The SS (MCData Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
5	The SS (MCData server) sends a SIP PUBLISH message to affiliate user A to group A.	<--	SIP PUBLISH	-	-
6	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
7	Check: Does the IUT (MCData Server) send a SIP NOTIFY informing about the affiliation change?	-->	SIP NOTIFY	2	P
8	The SS (MCData server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
9	The SS (MCData server) sends a SIP PUBLISH message to de-affiliate user A from group A.	<--	SIP PUBLISH	-	-
10	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
11	Check: Does the IUT (MCData Server) send a SIP NOTIFY message informing about the affiliation change?	-->	SIP NOTIFY	3	P
12	The SS (MCData Client) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
13	The SS (MCData Server) sends a SIP SUBSCRIBE message request to de-subscribe from affiliation status changes for user A and group A.	<--	SIP SUBSCRIBE	-	-
14	Check: Does the IUT (MCData Server) respond to the SIP SUBSCRIBE message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
15	Check: Does the IUT (MCData Server) send a SIP NOTIFY message indicating the termination of the subscription?	-->	SIP NOTIFY	4	P
16	The SS (MCData Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-

5.1.1.3.3 Specific message contents

Table 5.1.1.3.3-1: SIP SUBSCRIBE from the SS (MCData Server) (Step 1, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.14-1, conditions MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicSe rviceld_B	The public service identity identifying the controlling MCData function owning the MCData group		

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.14-1, conditions MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
From				
addr-spec				
user-info and host	tsc_MCDATA_PublicSe rviceld_A	The public service identity identifying the originating participating MCDATA function serving the MCDATA user		
To				
addr-spec				
user-info and host	tsc_MCDATA_PublicSe rviceld_B	The public service identity identifying the controlling MCDATA function owning the MCDATA group		
Expires				
value	"4294967295"	to receive the current status and later notification		
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp- service.ims.icsi.mcdata"			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-body	MCDATA-Info as described in Table 5.1.1.3.3-1A			
MIME body part		SIMPLE-FILTER		
MIME-part-body	Simple-Filter as described in Table 5.1.1.3.3-1B			

Table 5.1.1.3.3-1A: MCDATA-Info in SIP SUBSCRIBE (Table 5.1.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdatainfo				
mcdata-Params				
mcdata-request-uri	Encrypted (note) <mcdata-request-uri> with mcdataURI set to px_MCDATA_Group_A_ID			
mcdata-calling-user-id	Encrypted (note) <mcdata-calling-user- id> with mcdataURI set to px_MCDATA_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.3.2.1-3A.				

Table 5.1.1.3.3-1B: Simple-Filter in SIP SUBSCRIBE (Table 5.1.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.6-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
filter-set				
filter[1]				
what				
include[1]				
type	xpath if present	"xpath" per default		
base	"//pdf:presence/pdf:tupl[@id= " & px_MCDATA_ID_User_A & "]"		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.4.2.2	

Table 5.1.1.3.3-2: SIP 200 (OK) to SIP SUSCRIBE (Steps 2 and 14, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1 with condition SUBSCRIBE-RSP				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

Table 5.1.1.3.3-3: SIP NOTIFY from the IUT (MCDData Server) (Steps 3 and 11, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.8-1, conditions MCDATA and PRESENCE-EVENT				
Information Element	Value/remark	Comment	Reference	Condition
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcddata"			
P-Asserted-Identity				
addr-spec				
user-info and host	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function owning the MCDData group		
Message-body				
MIME body part		PIDF	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.3.3.5	
MIME-part-body	PIDF as described in Table 5.1.1.3.3-3A			

Table 5.1.1.3.3-3A: PIDF in SIP NOTIFY (Table 5.1.1.3.3-3)

Derivation Path: IETF RFC 3863 [14]				
Information Element	Value/remark	Comment	Reference	Condition
presence				
entity attribute	Encrypted URI (note) with value set to px_MCDATA_Group_A_ID			
tuple				
id attribute	Encrypted URI (note) with value set to px_MCDATA_ID_User_A			
status				
affiliation	not present	MCDData extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.4.1	
contact	not present			
note	not present			
timestamp	not present			
note	not present			
p-id	not present			
NOTE: Encrypted attribute as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.13.3-1.				

Table 5.1.1.3.3-4: SIP NOTIFY from the IUT (MCDData Server) (Steps 15, Table 5.1.1.3.2-1)

Derivation Path: Table 5.1.1.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Subscription-State			IETF RFC 6665 [11]	
substate-value	"terminated"			
expires	not present			

Table 5.1.1.3.3-5: SIP NOTIFY from the IUT (MCData Server) (Step 7, Table 5.1.1.3.2-1)

Derivation Path: Table 5.1.1.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME body part		PIDF	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.3.3.5	
MIME-part-body	PIDF as described in Table 5.1.1.3.3-5A			

Table 5.1.1.3.3-5A: PIDF in SIP NOTIFY (Table 5.1.1.3.3-5)

Derivation Path: Table 5.1.1.3.3-3A				
Information Element	Value/remark	Comment	Reference	Condition
presence				
tuple				
status				
affiliation				
client	Encrypted URI (note) with value set to px_MCX_Client_B_ID			
group	not present			
status	not present			
expires	Current time plus the value set in the Expires header of the SIP PUBLISH response.		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.3.3.5	
p-id	same value as received in the SIP PUBLISH message		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.3.2.5 and 8.3.3.5	
NOTE: Encrypted attribute as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.13.3-1.				

Table 5.1.1.3.3-6: SIP 200 (OK) to SIP NOTIFY (Steps 4, 8, 12 and 16, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

Table 5.1.1.3.3-7: SIP SUBSCRIBE from the SS (MCData Server) (Step 13, Table 5.1.1.3.2-1)

Derivation Path: Table 5.1.1.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	same URI as the IUT (MCData Server) has sent earlier in the Contact header of a message within the same dialog	Contact URI of the recipient of the previous 200 OK		
Expires				
value	"0"			

Table 5.1.1.3.3-8: SIP PUBLISH from the SS (MCDData Server) (Step 5, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.11-1, condition PRESENCE-EVENT				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function owning the MCDData group		
From				
addr-spec				
user-info and host	tsc_MCDData_PublicServiceId_A	The public service identity identifying the originating participating MCDData function serving the MCDData user		
To				
addr-spec				
user-info and host	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function owning the MCDData group		
Expires				
value	"4294967295"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata"			
P-Asserted-Identity				
addr-spec				
user-info and host	tsc_MCDData_PublicServiceId_A	The public service identity identifying the originating participating MCDData function serving the MCDData user		
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.1.1.3.3-1A			
MIME body part		PIDF		
MIME-part-body	PIDF as described in Table 5.1.1.3.3-8A			

Table 5.1.1.3.3-8A: PIDF in SIP PUBLISH (Table 5.1.1.3.3-8)

Derivation Path: Table 5.1.1.3.3-5A				
Information Element	Value/remark	Comment	Reference	Condition
presence				
tuple				
status				
affiliation		MCDData extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.4.1	
expires	not present			
p-id	any allowed value		ETSI TS 124 282 [5] (3GPP TS 24.282) clauses 8.3.2.5 and 8.3.3.5	

Table 5.1.1.3.3-9: SIP PUBLISH from the SS (MCData Server) (Step 9, Table 5.1.1.3.2-1)

Derivation Path: Table 5.1.1.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Expires				
value	"0"			
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.1.1.3.3-1A			
MIME body part		PIDF		
MIME-part-body	PIDF as described in Table 5.1.1.3.3-9A			

Table 5.1.1.3.3-9A: PIDF in SIP PUBLISH (Table 5.1.1.3.3-9)

Derivation Path: Table 5.1.1.3.3-8A				
Information Element	Value/remark	Comment	Reference	Condition
presence				
tuple				
status				
affiliation	not present	MCData extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 8.4.1	

Table 5.1.1.3.3-10: SIP 200 (OK) to SIP PUBLISH (Steps 6, 10, Table 5.1.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1 with condition PUBLISH-RSP				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

5.1.2 MCData Server - MCData Server / Configuration / Group Affiliation / De-Affiliation / Participating server

5.1.2.1 Test Purpose (TP)

(1)

```
with { IUT (MCData Server) connected to SS-UE1 (MCData Client) and SS (MCData Server) }
ensure that {
  when { IUT (MCData Server) subscribes to the affiliation status determination of user }
  then { IUT (MCData Server) sends a SIP SUBSCRIBE message requesting affiliation status updates
to SS (MCData Server) and sends SIP 200 (OK) after the reception of SIP NOTIFY from SS(MCData
Server) informing about not affiliated user }
}
```

(2)

```
with { IUT (MCData Server) subscribed to affiliation status and SS (MCData Server) having provided
affiliation status }
ensure that {
  when { IUT (MCData Server) triggers implicit affiliation for SS-UE1 (MCData Client) }
  then { IUT (MCData Server) sends a SIP PUBLISH message for implicit affiliation of user A to
group A to SS (MCData Server) and sends SIP 200 (OK) after the reception of SIP NOTIFY from
SS(MCData Server) informing about the SS-UE1 (MCData Client) affiliation change}
}
```

(3)

```

with { IUT (MCDData Server) subscribed to affiliation status and SS (MCDData Server) having affiliated the user }
ensure that {
  when { SS-UE1 (MCDData Client) sends a SIP PUBLISH message to IUT (MCDData Server) requesting the de-affiliation of user A from group A }
  then { IUT (MCDData Server) forwards the SIP PUBLISH message to SS (MCDData Server) and replies with SIP 200 (OK) to SS-UE1 (MCDData Client) and sends SIP 200 (OK) after the reception of SIP NOTIFY from SS(MCDData Server) informing about the SS-UE1 (MCDData Client) affiliation change }
}

```

(4)

```

with { IUT (MCDData Server) subscribed to affiliation status and SS (MCDData Server) having de-affiliated the user }
ensure that {
  when { SS-UE1 (MCDData Client) sends a SIP PUBLISH message to IUT (MCDData Server) requesting the affiliation of user A from group A }
  then { IUT (MCDData Server) forwards the SIP PUBLISH message to SS (MCDData Server) and replies with SIP 200 (OK) to SS-UE1 (MCDData Client) and sends SIP 200 (OK) after the reception of SIP NOTIFY from SS (MCDData Server) informing about the SS-UE1 (MCDData Client) affiliation change }
}

```

(5)

```

with { IUT (MCDData Server) subscribed to affiliation status and SS (MCDData Server) having affiliated the user }
ensure that {
  when { IUT (MCPTT server) de-subscribes from the affiliation status determination }
  then { IUT (MCDData Server) sends a SIP SUBSCRIBE message requesting de-subscription from affiliation status updates to SS (MCDData Server) and sends SIP 200 (OK) after the reception of SIP NOTIFY from SS(MCDData Server) informing about the subscription termination }
}

```

5.1.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 8.2.2, 8.3.2.3, 8.3.2.6, 8.3.2.7, 8.3.2.15 and 8.3.3.5. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.2.2]

"In the SIP PUBLISH request, the MCDData client:

- 1) *shall set the Request-URI to the public service identity identifying the originating participating MCDData function serving the MCDData user;*
- 2) *shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData client shall include the <mcdata-request-uri> element set to the MCDData ID of the MCDData user;*
- 3) *shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7];*
- 4) *if the targeted MCDData user is interested in at least one MCDData group at the targeted MCDData client, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;*

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) *if the targeted MCDData user is no longer interested in any MCDData group at the targeted MCDData client, shall set the Expires header field according to IETF RFC 3903 [34], to zero; and*
- 6) *shall include an application/pdf+xml MIME body indicating per-user affiliation information according to subclause 8.4.1. In the MIME body, the MCDData client:*
 - a) *shall include all MCDData groups where the targeted MCDData user indicates its interest at the targeted MCDData client;*
 - b) *shall include the MCDData client ID of the targeted MCDData client;*

- c) shall not include the "status" attribute and the "expires" attribute in the <affiliation> element; and
- d) shall set the <p-id> child element of the <presence> root element to a globally unique value.

The MCDData client shall send the SIP PUBLISH request according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.3]

"Upon receiving a SIP PUBLISH request such that:

- 1) Request-URI of the SIP PUBLISH request contains either the public service identity identifying the originating participating MCDData function serving the MCDData user, or the public service identity identifying the terminating participating MCDData function serving the MCDData user;
- 2) the SIP PUBLISH request contains an application/vnd.3gpp.mcdata-info+xml MIME body containing the <mcdata-request-uri> element which identifies an MCDData ID served by the MCDData server;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP PUBLISH request contains the "presence" event type; and
- 5) SIP PUBLISH request contains an application/pidf+xml MIME body indicating per-user affiliation information according to subclause 8.4.1;

then the MCDData server:

- 1) shall identify the served MCDData ID in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP PUBLISH request;
- 2) if the Request-URI of the SIP PUBLISH request contains the public service identity identifying the originating participating MCDData function serving the MCDData user, shall identify the originating MCDData ID from public user identity in the P-Asserted-Identity header field of the SIP PUBLISH request;
- 3) if the Request-URI of the SIP PUBLISH request contains the public service identity identifying the terminating participating MCDData function serving the MCDData user, shall identify the originating MCDData ID in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP PUBLISH request;
- ...
- 6) if the Expires header field of the SIP PUBLISH request has nonzero value, shall determine the candidate expiration interval to according to IETF RFC 3903 [34];
- 7) if the Expires header field of the SIP PUBLISH request has zero value, shall set the candidate expiration interval to zero;
- 8) shall respond with SIP 200 (OK) response to the SIP PUBLISH request according to 3GPP TS 24.229 [5], IETF RFC 3903 [34]. In the SIP 200 (OK) response, the MCDData server:
 - a) shall set the Expires header field according to IETF RFC 3903 [34], to the candidate expiration time;
- 9) if the "entity" attribute of the <presence> element of the application/pidf+xml MIME body of the SIP PUBLISH request is different than the served MCDData ID, shall not continue with the rest of the steps;
- 10) shall identify the served MCDData client ID in the "id" attribute of the <tuple> element of the <presence> element of the application/pidf+xml MIME body of the SIP PUBLISH request;
- 11) shall consider an MCDData user information entry such that:
 - a) the MCDData user information entry is in the list of MCDData user information entries described in subclause 8.3.2.2; and
 - b) the MCDData ID of the MCDData user information entry is equal to the served MCDData ID;
 as the served MCDData user information entry;

- 12) shall consider an MCDData client information entry such that:
- a) the MCDData client information entry is in the list of MCDData client information entries of the served MCDData user information entry; and
 - b) the MCDData client ID of the MCDData client information entry is equal to the served MCDData client ID;
as the served MCDData client information entry;
- 13) shall consider a copy of the list of the MCDData group information entries of the served MCDData client information entry as the served list of the MCDData group information entries;
- 14) if the candidate expiration interval is nonzero:
- a) shall construct the candidate list of the MCDData group information entries as follows:
 - i) for each MCDData group ID which has an MCDData group information entry in the served list of the MCDData group information entries, such that the expiration time of the MCDData group information entry has not expired yet, and which is indicated in a "group" attribute of an <affiliation> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:
 - A) shall copy the MCDData group information entry into a new MCDData group information entry of the candidate list of the MCDData group information entries;
 - B) if the affiliation status of the MCDData group information entry is "deaffiliating" or "deaffiliated", shall set the affiliation status of the new MCDData group information entry to the "affiliating" state and shall reset the affiliating p-id of the new MCDData group information entry; and
 - C) shall set the expiration time of the new MCDData group information entry to the current time increased with the candidate expiration interval;
 - ii) for each MCDData group ID which has an MCDData group information entry in the served list of the MCDData group information entries, such that the expiration time of the MCDData group information entry has not expired yet, and which is not indicated in any "group" attribute of the <affiliation> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:
 - A) shall copy the MCDData group information entry into a new MCDData group information entry of the candidate list of the MCDData group information entries; and
 - B) if the affiliation status of the MCDData group information entry is "affiliated" or "affiliating":
 - shall set the affiliation status of the new MCDData group information entry to the "de-affiliating" state; and
 - shall set the expiration time of the new MCDData group information entry to the current time increased with twice the value of timer F; and
 - iii) for each MCDData group ID:
 - A) which does not have an MCDData group information entry in the served list of the MCDData group information entries; or
 - B) which has an MCDData group information entry in the served list of the MCDData group information entries, such that the expiration time of the MCDData group information entry has already expired;
and which is indicated in a "group" element of the <affiliation> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:
 - A) shall add a new MCDData group information entry in the candidate list of the MCDData group information list for the MCDData group ID;

- B) shall set the affiliation status of the new MCDData group information entry to the "affiliating" state;
 - C) shall set the expiration time of the new MCDData group information entry to the current time increased with the candidate expiration interval; and
 - D) shall reset the affiliating p-id of the new MCDData group information entry;
- b) determine the candidate number of MCDData group IDs as number of different MCDData group IDs which have an MCDData group information entry:
 - i) in the candidate list of the MCDData group information entries; or
 - ii) in the list of the MCDData group information entries of an MCDData client information entry such that:
 - A) the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry; and
 - B) the MCDData client ID of the MCDData client information entry is not equal to the served MCDData client ID;

with the affiliation status set to the "affiliating" state or the "affiliated" state and with the expiration time which has not expired yet; and

...
- 15) if the candidate expiration interval is zero, constructs the candidate list of the MCDData group information entries as follows:
 - a) for each MCDData group ID which has an entry in the served list of the MCDData group information entries:
 - i) shall copy the MCDData group entry of the served list of the MCDData group information into a new MCDData group information entry of the candidate list of the MCDData group information entries;
 - ii) shall set the affiliation status of the new MCDData group information entry to the "de-affiliating" state; and
 - iii) shall set the expiration time of the new MCDData group information entry to the current time increased with twice the value of timer F;
- 16) shall replace the list of the MCDData group information entries stored in the served MCDData client information entry with the candidate list of the MCDData group information entries;
- 17) shall perform the procedures specified in subclause 8.3.2.6 for the served MCDData ID and each MCDData group ID:
 - a) which does not have an MCDData group information entry in the served list of the MCDData group information entries and which has an MCDData group information entry in the candidate list of the MCDData group information entries with the affiliation status set to the "affiliating" state;
 - b) which has an MCDData group information entry in the served list of the MCDData group information entries with the expiration time already expired, and which has an MCDData group information entry in the candidate list of the MCDData group information entries with the affiliation status set to the "affiliating" state;
 - c) which has an MCDData group information entry in the served list of the MCDData group information entries with the affiliation status set to the "deaffiliating" state or the "deaffiliated" state and with the expiration time not expired yet, and which has an MCDData group information entry in the candidate list of the MCDData group information entries with the affiliation status set to the "affiliating" state; or
 - d) which has an MCDData group information entry in the served list of the MCDData group information entries with the affiliation status set to the "affiliated" state and with the expiration time not expired yet, and which has an MCDData group information entry in the candidate list of the MCDData group information entries with the affiliation status set to the "de-affiliating" state;

- 18) shall identify the handled p-id in the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request; and
- 19) shall perform the procedures specified in subclause 8.3.2.5 for the served MCDData ID."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.6]

"In order:

- to send an affiliation request of a served MCDData ID to a handled MCDData group ID;
- to send an de-affiliation request of a served MCDData ID from a handled MCDData group ID; or
- to send an affiliation request of a served MCDData ID to a handled MCDData group ID due to near expiration of the previously published information;

the MCDData server shall generate a SIP PUBLISH request according to 3GPP TS 24.229 [5], IETF RFC 3903 [34] and IETF RFC 3856 [39]. In the SIP PUBLISH request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled MCDData group ID;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled MCDData group ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if sending an affiliation request, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if sending an de-affiliation request, shall set the Expires header field according to IETF RFC 3903 [34], to zero;
- 6) shall include an P-Asserted-Identity header field set to the public service identity of the MCDData server according to 3GPP TS 24.229 [5];
- 7) shall set the current p-id to a globally unique value;
- 8) shall consider an MCDData user information entry such that:
 - a) the MCDData user information entry is in the list of MCDData user information entries described in subclause 8.3.2.2; and
 - b) the MCDData ID of the MCDData user information entry is equal to the served MCDData ID;
 as the served MCDData user information entry;
- 9) for each MCDData group information entry such that:
 - a) the MCDData group information entry has the "affiliating" affiliation status, the MCDData group ID set to the handled MCDData group ID, the expiration time has not expired yet and the affiliating p-id is not set;
 - b) the MCDData group information entry is in the list of the MCDData group information entries of an MCDData client information entry; and
 - c) the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry;
 shall set the affiliating p-id of the MCDData group information entry to the current p-id; and

- 10) shall include an application/pidf+xml MIME body indicating per-group affiliation information constructed according to subclause 8.4.1. The MCDData server shall indicate all served MCDData client IDs, such that:
- the affiliation status is set to "affiliating" or "affiliated", and the expiration time has not expired yet in an MCDData group information entry with the MCDData group ID set to the handled MCDData group;
 - the MCDData group information entry is in the list of the MCDData group information entries of an MCDData client information entry;
 - the MCDData client information entry has the MCDData client ID set to the served MCDData client ID; and
 - the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry.

The MCDData server shall set the <p-id> child element of the <presence> root element to the current p-id.

The MCDData server shall not include the "expires" attribute in the <affiliation> element.

The MCDData server shall send the SIP PUBLISH request according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.7]

"In order to discover whether a served MCDData user was successfully affiliated to a handled MCDData group in the MCDData server owning the handled MCDData group, the MCDData server shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36].

In the SIP SUBSCRIBE request, the MCDData server:

- shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled MCDData group ID;
- shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - shall include the <mcdata-request-uri> element set to the handled MCDData group ID; and
 - shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- if the MCDData server wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- shall include an Accept header field containing the application/pidf+xml MIME type; and
- shall include an application/simple-filter+xml MIME body indicating per-user restrictions of presence event package notification information according to subclause 8.4.2, indicating the served MCDData ID.

In order to re-subscribe or de-subscribe, the MCDData server shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36]. In the SIP SUBSCRIBE request, the MCDData server:

- if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- if the MCDData server wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [36], to zero; and

- 3) shall include an Accept header field containing the application/pidf+xml MIME type.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36], if SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-group affiliation information constructed according to subclause 8.4.1, then the MCData server:

- 1) for each served MCData ID and served MCData client ID such that the application/pidf+xml MIME body of SIP NOTIFY request contains:
 - a) a <tuple> element of the root <presence> element;
 - b) the "id" attribute of the <tuple> element indicating the served MCData ID;
 - c) an <affiliation> child element of the <status> element of the <tuple> element;
 - d) the "client" attribute of the <affiliation> element indicating the served MCData client ID; and
 - d) the "expires" attribute of the <affiliation> element indicating expiration of affiliation;

perform the following:

- a) if an MCData group information entry exists such that:
 - i) the MCData group information entry has the "affiliating" affiliation status, the MCData group ID set to the handled MCData group ID, and the expiration time has not expired yet;
 - ii) the MCData group information entry is in the list of the MCData group information entries of an MCData client information entry with the MCData client ID set to the served MCData client ID;
 - iii) the MCData client information entry is in the list of the MCData client information entries of a served MCData user information entry with the MCData ID set to the served MCData ID; and
 - iv) the MCData user information entry is in the list of MCData user information entries described in subclause 8.3.2.2; and

shall set the affiliation status of the MCData group information entry to "affiliated"; and

shall set the next publishing time of the MCData group information entry to the current time and half of the time between the current time and the expiration of affiliation; and

- 2) for each MCData group information entry such that:
 - a) the MCData group information entry has the "affiliated" affiliation status or the "deaffiliating" affiliation status, the MCData group ID set to the handled MCData group ID, and the expiration time has not expired yet;
 - b) the MCData group information entry is in the list of the MCData group information entries of an MCData client information entry with the MCData client ID set to a served MCData client ID;
 - c) the MCData client information entry is in the list of the MCData client information entries of the served MCData user information entry with the MCData ID set to a served MCData ID; and
 - d) the MCData user information entry is in the list of MCData user information entries described in subclause 8.3.2.2; and

for which the application/pidf+xml MIME body of SIP NOTIFY request does not contain:

- a) a <tuple> element of the root <presence> element;
- b) the "id" attribute of the <tuple> element indicating the served MCData ID;
- c) an <affiliation> child element of the <status> child element of the <tuple> element; and
- d) the "client" attribute of the <affiliation> element indicating the served MCData client ID.

perform the following:

- a) shall set the affiliation status of the MCDData group information entry to "deaffiliated"; and
 - b) shall set the expiration time of the MCDData group information entry to the current time; and
- 3) if a <p-id> element is included in the <presence> root element of the application/pdf+xml MIME body of the SIP NOTIFY request, then for each MCDData group information entry such that:
- a) the MCDData group information entry has the "affiliating" affiliation status, the MCDData group ID set to the handled MCDData group ID, the expiration time has not expired yet and with the affiliating p-id set to the value of the <p-id> element;
 - b) the MCDData group information entry is in the list of the MCDData group information entries of an MCDData client information entry with the MCDData client ID set to a served MCDData client ID;
 - c) the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry with the MCDData ID set to a served MCDData ID; and
 - d) the MCDData user information entry is in the list of MCDData user information entries described in subclause 8.3.2.2; and

for which the application/pdf+xml MIME body of SIP NOTIFY request does not contain:

- a) a <tuple> element of the root <presence> element;
- b) the "id" attribute of the <tuple> element indicating the served MCDData ID;
- c) an <affiliation> child element of the <status> child element of the <tuple> element; and
- d) the "client" attribute of the <affiliation> element indicating the served MCDData client ID;

perform the following:

- a) shall set the affiliation status of the MCDData group information entry to "deaffiliated"; and
- b) shall set the expiration time of the MCDData group information entry to the current time."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.2.15]

"If the participating MCDData function has successfully performed service authorization for the MCDData ID identified in the service authorisation procedure as described in 3GPP TS 33.179 [56], the participating MCDData function:

- 1) shall identify the MCDData ID included in the SIP request received for service authorisation procedure as the served MCDData ID;
- 2) shall identify the MCDData client ID from the <mcddata-client-id> element contained in the application/vnd.3gpp.mcddata-info+xml MIME body included in the SIP request received for service authorisation as the served MCDData client ID;
- 3) shall download the MCDData user profile from the MCDData user database as defined in 3GPP TS 29.283 [37] if not already stored at the participating MCDData function;
- 4) if no <ImplicitAffiliations> element is contained in the <OnNetwork> element of the MCDData user profile document (see the MCDData user profile document in 3GPP TS 24.484 [12]) for the served MCDData ID or the <ImplicitAffiliations> element contains no <entry> elements containing an MCDData group ID, shall skip the remaining steps;
- 5) shall consider an MCDData user information entry such that:
 - a) the MCDData user information entry is in the list of MCDData user information entries described in subclause 8.3.2.2; and
 - b) the MCDData ID of the MCDData user information entry is equal to the served MCDData ID;
 as the served MCDData user information entry;

- 6) shall consider an MCDData client information entry such that:
 - a) the MCDData client information entry is in the list of MCDData client information entries of the served MCDData user information entry; and
 - b) the MCDData client ID of the MCDData client information entry is equal to the served MCDData client ID; as the served MCDData client information entry;
- 7) shall consider a copy of the list of the MCDData group information entries of the served MCDData client information entry as the served list of the MCDData group information entries;
- 8) shall construct the candidate list of the MCDData group information entries as follows:
 - a) for each MCDData group ID which has an MCDData group information entry in the served list of the MCDData group information entries shall copy the MCDData group information entry into a new MCDData group information entry of the candidate list of the MCDData group information entries;
 - b) for each MCDData group ID contained in an <entry> element of the <ImplicitAffiliations> element in the <OnNetwork> element of the MCDData user profile document (see the MCDData user profile document in 3GPP TS 24.484 [12]) for the served MCDData ID that does not have an MCDData group information entry in the served list of the MCDData group information entries or has an MCDData group information entry in the served list of the MCDData group information entries such that the expiration time of the MCDData group information entry has already expired:
 - i) shall add a new MCDData group information entry in the candidate list of the MCDData group information list for the MCDData group ID;
 - ii) shall set the affiliation status of the new MCDData group information entry to the "affiliating" state; and
 - iii) shall set the expiration time of the new MCDData group information entry to the current time increased with the candidate expiration interval;
 - c) if in step b) above, no new MCDData group information entries were added to the candidate list of the MCDData group information list for the MCDData group ID:
 - i) shall discard the candidate list; and
 - ii) shall skip the remaining steps;
- 9) determine the candidate number of MCDData group IDs as the number of different MCDData group IDs which have an MCDData group information entry:
 - a) in the candidate list of the MCDData group information entries; or
 - b) in the list of the MCDData group information entries of an MCDData client information entry such that:
 - i) the MCDData client information entry is in the list of the MCDData client information entries of the served MCDData user information entry; and
 - ii) the MCDData client ID of the MCDData client information entry is not equal to the served MCDData client ID;

with the affiliation status set to the "affiliating" state or the "affiliated" state and with the expiration time which has not expired yet; and
 - c) if the candidate number of MCDData group IDs is bigger than the N2 value of the served MCDData ID, shall based on MCDData service provider policy reduce the candidate MCDData group IDs to that equal to N2;
- 10) shall replace the list of the MCDData group information entries stored in the served MCDData client information entry with the candidate list of the MCDData group information entries; and

- 11) for each MCDData group ID contained in an <entry> element of the <ImplicitAffiliations> element in the <OnNetwork> element of the MCDData user profile document (see the MCDData user profile document in 3GPP TS 24.484 [12]) for the served MCDData ID and which has an MCDData group information entry in the candidate list of the MCDData group information entries with an affiliation status of "affiliating", shall perform the procedures specified in subclause 8.3.2.6 for the served MCDData ID and each MCDData group ID.

NOTE 2: To learn of the MCDData groups successfully affiliated to, the MCDData client can subscribe to that information by the procedures specified in subclause 8.2.3."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 8.3.3.5]

"In order to notify the subscriber identified by the handled MCDData ID about changes of the affiliation status of the served MCDData group ID, the MCDData server:

- 1) shall consider an MCDData group information entry such that:
 - a) the MCDData group information entry is in the list of MCDData group information entries described in subclause 8.3.3.2; and
 - b) the MCDData group ID of the MCDData group information entry is equal to the served MCDData group ID;
- 2) shall consider an MCDData user information entry such:
 - a) the MCDData user information entry is in the list of the MCDData user information entries of the served MCDData group information entry; and
 - b) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID;
 as the served MCDData user information entry;
- 3) shall generate an application/pidf+xml MIME body indicating per-group affiliation information according to subclause 8.4.1 and the served list of the served MCDData user information entry of the MCDData group information entry with following clarifications:
 - a) the MCDData server shall include the "expires" attribute in the <affiliation> element; and
 - b) if this procedures is invoked by procedure in subclause 8.3.3.3 where the handled p-id was identified, the MCDData server shall set the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request to the handled p-id value; and
- 4) send a SIP NOTIFY request according to 3GPP TS 24.229 [5], and IETF RFC 6665 [36] for the subscription created in subclause 8.3.3.4. In the SIP NOTIFY request, the MCDData server shall include the generated application/pidf+xml MIME body indicating per-group affiliation information."

5.1.2.3 Test description

5.1.2.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server):
 - SS (MCDData Server) provides the controlling MCDData function.
- SS-UE1 (MCDData client).

IUT:

- IUT (MCDData Server):
 - IUT (MCDData Server) provides the participating MCDData function.

- The IUT (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCData Server) is connected to the SS (MCData Server) and to the SS-UE1 (MCData client).
- The SS-UE1 (MCData client) is registered and authorized to use the MCData system.
- Group A is controlled by the controlling MCData function.
- User A is configured to be implicitly affiliated to Group A.

5.1.2.3.2 Test procedure sequence

Table 5.1.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the IUT (MCData Server) subscribe to affiliation status determination and later notifications for user A in group A.	-	-	-	-
2	Check: Does the IUT (MCData Server) send a SIP SUBSCRIBE message request to determine the affiliation status of user A for group A?	-->	SIP SUBSCRIBE	1	P
3	The SS (MCData Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
4	The SS (MCData Server) sends a SIP NOTIFY message informing that user A is not affiliated to group A.	<--	SIP NOTIFY	-	-
5	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
6	Check: Does the IUT (MCData Server) send a SIP PUBLISH message to implicitly affiliate user A to group A?	-->	SIP PUBLISH	2	P
7	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
8	The SS (MCData Server) sends a SIP NOTIFY informing about the affiliation change.	<--	SIP NOTIFY	-	-
9	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK)?	-->	SIP 200 (OK)	2	P
10	The SS-UE1 (MCData client) sends a SIP PUBLISH message to de-affiliate user A from group A.	<--	SIP PUBLISH	-	-
11	Check: Does the IUT (MCData Server) send a SIP PUBLISH message to the SS (MCData Server) to de-affiliate user A from group A?	-->	SIP PUBLISH	3	P
12	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
13	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
14	The SS (MCData Server) sends a SIP NOTIFY informing about the affiliation change.	<--	SIP NOTIFY	-	-
15	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK)?	-->	SIP 200 (OK)	3	P
16	The SS-UE1 (MCData client) sends a SIP PUBLISH message to affiliate user A to group A.	<--	SIP PUBLISH	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
17	Check: Does the IUT (MCData Server) send a SIP PUBLISH message to the SS (MCData Server) to affiliate user A from group A?	-->	SIP PUBLISH	4	P
18	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	
19	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
20	The SS (MCData Server) sends a SIP NOTIFY message informing about the affiliation change	<--	SIP NOTIFY	-	-
21	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK)?	-->	SIP 200 (OK)	4	P
22	Make the IUT (MCData Server) de-subscribe from getting affiliation status notifications for user A and group A.	-	-	-	-
23	Check: Does the IUT (MCData Server) send a SIP SUBSCRIBE message request to de-subscribe from affiliation status changes for user A and group A?	-->	SIP SUBSCRIBE	5	P
24	The SS (MCData Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
25	The SS (MCData Server) sends a SIP NOTIFY message indicating the termination of the subscription.	<--	SIP NOTIFY	-	-
26	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	5	P

5.1.2.3.3 Specific message contents

Table 5.1.2.3.3-1: SIP SUBSCRIBE from the IUT (MCData Server) (Step 2, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-1

Table 5.1.3.3.3-2: SIP 200 (OK) to SUBSCRIBE (Steps 3 and 24, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.1.3.3-2

Table 5.1.2.3.3-3: SIP NOTIFY from the SS (MCData Server) (Steps 4 and 14, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-3

Table 5.1.2.3.3-4: SIP NOTIFY from the SS (MCData Server) (Steps 8 and 20, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-5

Table 5.1.2.3.3-5: SIP NOTIFY from the SS (MCData Server) (Step 25, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.2.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Subscription-State			IETF RFC 6665 [11]	
substate-value	"terminated"			
expires	not present			

Table 5.1.3.3.3-6: SIP 200 (OK) to NOTIFY (Steps 5, 9, 15, 21 and 26, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.1.3.3-6

Table 5.1.2.3.3-7: SIP SUBSCRIBE from the IUT (MCDData Server) (Step 23, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-7

Table 5.1.2.3.3-8: SIP PUBLISH from the IUT (MCDData Server) (Steps 6 and 17, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-8

Table 5.1.2.3.3-9: SIP PUBLISH from the IUT (MCDData Server) (Step 11, Table 5.1.2.3.2-1)

Derivation Path: Table 5.1.1.3.3-9

Table 5.1.2.3.3-10: SIP PUBLISH from the SS-UE1 (MCDData Client) (Step 10, Table 5.1.2.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 5.3.3.3-7

Table 5.1.2.3.3-11: SIP PUBLISH from the SS-UE1 (MCDData Client) (Step 16, Table 5.1.2.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 5.3.3.3-8

Table 5.1.2.3.3-12: SIP 200 (OK) to PUBLISH (Steps 7, 12 and 18, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.1.3.3-10

Table 5.1.2.3.3-13: SIP 200 (OK) to PUBLISH (Steps 13 and 19, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1, condition PUBLISH-RSP

5.1.3 MCDATA Server - MCDATA Server / Configuration / Functional Alias / Functional alias status determination / Activate functional alias / Deactivate functional alias / Controlling server

5.1.3.1 Test Purpose (TP)

(1)

```

with { IUT (MCDData Server) connected to SS (MCDData Server) }
ensure that {
  when { SS (MCDData Server) requests IUT (MCDData Server) to determine the current status of a
functional alias and get later notifications of status change with a SIP SUBSCRIBE message }
  then { IUT (MCDData Server) responds via SS (MCDData Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message informing about the status of the functional alias }
}

```

(2)

```

with { SS (MCDData Server) subscribed to the status of the functional alias and IUT (MCDData Server)
having provided the status of the functional alias }
ensure that {
  when { SS (MCDData Server) requests IUT (MCDData Server) the functional alias activation for user A
with a SIP PUBLISH message }
  then { IUT (MCDData Server) responds via SS (MCDData Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message to inform about the successful activation of the functional alias}
}

```

(3)

```

with { SS (MCDData Server) subscribed to the status of the functional alias and IUT (MCDData Server)
having activated the functional alias }
ensure that {
  when { SS (MCDData Server) requests IUT (MCDData Server) to deactivate the functional alias for user
A with a SIP PUBLISH message }
  then { IUT (MCDData Server) responds via SS (MCDData Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message to inform successful deactivation of the functional alias}
}

```

(4)

```

with { SS (MCDData Server) subscribed to the status of the functional alias and IUT (MCDData Server)
having deactivated the functional alias }
ensure that {
  when { SS (MCDData Server) requests IUT (MCDData Server) to de-subscribe from functional alias
status change to stop receiving functional alias status updates with a SIP SUBSCRIBE message }
  then { IUT (MCDData Server) responds via SS (MCDData Server) with a SIP 200 (OK) and sends a SIP
NOTIFY message indicating the termination of the subscription}
}

```

5.1.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 22.2.2.2.6, 22.2.2.2.7, 22.2.2.3.3, 22.2.2.3.4 and 22.2.2.3.5. Unless otherwise stated, these are Rel-16 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.2.6]

"In order:

- to send an activation request of a served MCDData ID for a handled functional alias ID;
- to send an deactivation request of a served MCDData ID for a handled functional alias ID;
- to send a take over request of a served MCDData ID for a handled functional alias ID due to take over; or
- to send an activation request of a served MCDData ID for a handled functional alias ID due to near expiration of the previously published information;

the MCDData server shall generate a SIP PUBLISH request according to TS 24.229 [5], IETF RFC 3903 [34] and IETF RFC 3856 [39]. In the SIP PUBLISH request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled functional alias ID;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled functional alias ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if sending an activation request, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if sending an deactivation request, shall set the Expires header field according to IETF RFC 3903 [34], to zero;
- 6) shall include an P-Asserted-Identity header field set to the public service identity of the MCDData server according to 3GPP TS 24.229 [5];
- 7) shall set the current p-id-fa to a globally unique value;
- ...
- 10) shall include an application/pdf+xml MIME body indicating per-functional alias status information constructed according to clause 22.3.1.2. The MCDData server shall indicate all served MCDData user IDs, such that:
 - a) the functional alias status is set to "activating" with or without "take-over" element or "activated", and the expiration time has not expired yet in a functional alias information entry with the functional alias ID set to the handled functional alias;
 - b) the functional alias information entry is in the list of the functional alias information entries of an MCDData user information entry; and
 - c) the MCDData user information entry is a served MCDData user information entry.

The MCDData server shall set the <p-id-fa> child element of the <presence> root element to the current p-id-fa.

The MCDData server shall not include the "expires" attribute in the <functionalAlias> element.

The MCDData server shall send the SIP PUBLISH request according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.2.7]

"In order to discover whether a served MCDData user successfully activated a handled functional alias in the MCDData server owning the functional alias, the MCDData server shall generate an initial SIP SUBSCRIBE request according to TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36].

In the SIP SUBSCRIBE request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled functional alias;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled functional alias ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if the MCDData server wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- 6) shall include an Accept header field containing the application/pdf+xml MIME type;
- 7) shall include an Events header field set to "presence"; and

- 8) shall include an *application/simple-filter+xml* MIME body indicating per-user restrictions of presence event package notification information according to subclause 22.3.2, indicating the served MCDData ID.

In order to re-subscribe or de-subscribe, the MCDData server shall generate an in-dialog SIP SUBSCRIBE request according to TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36]. In the SIP SUBSCRIBE request, the MCDData server:

- 1) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 2) if the MCDData server wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- 3) shall include an Events header field set to "presence"; and
- 4) shall include an Accept header field containing the *application/pidf+xml* MIME type."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.3.3]

"Upon receiving a SIP PUBLISH request such that:

- 1) Request-URI of the SIP PUBLISH request contains the public service identity of the controlling MCDData function associated with the served functional alias;
- 2) the SIP PUBLISH request contains an *application/vnd.3gpp.mcdata-info+xml* MIME body containing the `<mcdata-request-uri>` element and the `<mcdata-calling-user-id>` element;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP PUBLISH request contains the "presence" event type; and
- 5) SIP PUBLISH request contains an *application/pidf+xml* MIME body indicating per-functional alias information constructed according to clause 22.2.3.2;

then the MCDData server:

- 1) shall identify the served functional alias in the `<mcdata-request-uri>` element of the *application/vnd.3gpp.mcdata-info+xml* MIME body of the SIP PUBLISH request;
- 2) shall identify the handled MCDData ID in the `<mcdata-calling-user-id>` element of the *application/vnd.3gpp.mcdata-info+xml* MIME body of the SIP PUBLISH request;
- ...
- 7) shall respond with SIP 200 (OK) response to the SIP PUBLISH request according to TS 24.229 [5], IETF RFC 3903 [34]. In the SIP 200 (OK) response, the MCDData server:
 - a) shall set the Expires header field according to IETF RFC 3903 [34], to the selected expiration time;
- 8) if the "entity" attribute of the `<presence>` element of the *application/pidf+xml* MIME body of the SIP PUBLISH request is different than the served functional alias ID, shall not continue with the rest of the steps;
- 9) if the handled MCDData ID is different from the MCDData ID in the "id" attribute of the `<tuple>` element of the `<presence>` root element of the *application/pidf+xml* MIME body of the SIP PUBLISH request, shall not continue with the rest of the steps;
- 10) shall consider a functional alias information entry such that:
 - a) the functional alias information entry is in the list of functional alias information entries described in clause 22.2.2.3.2; and
 - b) the functional alias ID of the functional alias information entry is equal to the served functional alias ID;

as the served functional alias information entry;

11) if the selected expiration time is zero:

- a) shall remove the MCDData user information entry such that:
 - i) the MCDData user information entry is in the list of the MCDData user information entries of the served functional alias information entry; and
 - ii) the MCDData user information entry has the MCDData ID set to the served MCDData ID;

12) if the selected expiration time is not zero:

- a) shall consider an MCDData user information entry such that:
 - i) the MCDData user information entry is in the list of the MCDData user information entries of the served functional alias information entry; and
 - ii) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID;

as the served MCDData user information entry;
- b) if the MCDData user information entry does not exist:
 - i) shall insert an MCDData user information entry with the MCDData ID set to the handled MCDData ID into the list of the MCDData user information entries of the served functional alias information entry; and
 - ii) shall consider the inserted MCDData user information entry as the served MCDData user information entry; and
- c) shall set the expiration time in the served MCDData user information entry according to the selected expiration time;

13) shall identify the handled p-id-fa in the <p-id-fa> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request; and

14) shall perform the procedures specified in clause 22.2.2.3.5 for the served functional alias ID."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.3.4]

"Upon receiving a SIP SUBSCRIBE request such that:

- 1) Request-URI of the SIP SUBSCRIBE request contains the public service identity of the controlling MCDData function associated with the served functional alias;
- 2) the SIP SUBSCRIBE request contains an application/vnd.3gpp.mcdata-info+xml MIME body containing the <mcdata-request-uri> element and the <mcdata-calling-user-id> element;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP SUBSCRIBE request contains the "presence" event type; and
- 5) the SIP SUBSCRIBE request contains an application/simple-filter+xml MIME body indicating per-user restrictions of presence event package notification information according to clause 22.3.2 indicating the same MCDData ID as in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP SUBSCRIBE request;

then the MCDData server:

- 1) shall identify the served functional alias ID in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP SUBSCRIBE request;
- 2) shall identify the handled MCDData ID in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP SUBSCRIBE request;

...

- 6) shall generate a SIP 200 (OK) response to the SIP SUBSCRIBE request according to TS 24.229 [5], IETF RFC 6665 [36].

For the duration of the subscription, the MCDData server shall notify subscriber about changes of the information of the served MCDData ID, as described in clause 22.2.2.3.5."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.3.5]

"In order to notify the subscriber identified by the handled MCDData ID about changes of the functional alias status of the served functional alias ID, the MCDData server:

- 1) shall consider a functional alias information entry such that:
 - a) the functional alias information entry is in the list of functional alias information entries described in clause 22.2.2.3.2; and
 - b) the functional alias ID of the functional alias information entry is equal to the served functional alias ID;
- 2) shall consider an MCDData user information entry such:
 - a) the MCDData user information entry is in the list of the MCDData user information entries of the served functional alias information entry; and
 - b) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID;

as the served MCDData user information entry;
- 3) shall generate an application/pidf+xml MIME body indicating per-functional alias information according to clause 22.3.1 and the served list of the served MCDData user information entry of the functional alias information entry with following clarifications:
 - a) the MCDData server shall include the "expires" attribute in the <functionalAlias> element; and
 - b) if this procedures is invoked by procedure in subclause 22.2.2.3.3 where the handled p-id-fa was identified, the MCDData server shall set the <p-id-fa> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request to the handled p-id-fa value; and
- 4) send a SIP NOTIFY request according to 3GPP TS 24.229 [5], and IETF RFC 6665 [36] for the subscription created in clause 22.2.2.3.4. In the SIP NOTIFY request, the MCDData server shall include the generated application/pidf+xml MIME body indicating per-functional alias information."

5.1.3.3 Test description

5.1.3.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server):
 - SS (MCDData Server) provides the participating MCDData function.
- SS-UE1 (MCDData client):
 - Simulated behind the SS (MCDData Server).

IUT:

- IUT (MCDData Server):
 - IUT (MCDData Server) provides the controlling MCDData function.

- The IUT (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCData Server) is connected to the SS (MCData Server).
- The SS-UE1 (MCData client) is registered and authorized to use the MCData system.
- Functional Alias A is controlled by the controlling MCData function.

5.1.3.3.2 Test procedure sequence

Table 5.1.3.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCData Server) sends a SIP SUBSCRIBE message request to determine the current status of a functional alias and to get later notification of status changes of a functional alias.	<--	SIP SUBSCRIBE	-	-
2	Check: Does the IUT (MCData Server) respond to the SIP SUBSCRIBE message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the IUT (MCData Server) send a SIP NOTIFY message informing about the status of the functional alias?	-->	SIP NOTIFY	1	P
4	The SS (MCData Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
5	The SS (MCData server) sends a SIP PUBLISH message to activate the functional alias for user A.	<--	SIP PUBLISH	-	-
6	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
7	Check: Does the IUT (MCData Server) send a SIP NOTIFY informing about the successful activation of the functional alias?	-->	SIP NOTIFY	2	P
8	The SS (MCData Server) responds with a SIP 200 (OK) to the SIP NOTIFY.	<--	SIP 200 (OK)	-	-
9	The SS (MCData server) sends a SIP PUBLISH message to deactivate the functional alias.	<--	SIP PUBLISH	-	-
10	Check: Does the IUT (MCData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
11	Check: Does the IUT (MCData Server) send a SIP NOTIFY informing about the successful deactivation of the functional alias?	-->	SIP NOTIFY	3	P
12	The SS (MCData Server) responds with a SIP 200 (OK) to the SIP NOTIFY.	<--	SIP 200 (OK)	-	-
13	The SS (MCData Server) sends a SIP SUBSCRIBE message request to de-subscribe from functional alias status changes of the functional alias.	<--	SIP SUBSCRIBE	-	-
14	Check: Does the IUT (MCData Server) respond to the SIP SUBSCRIBE message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
15	Check: Does the IUT (MCData Server) send a SIP NOTIFY message indicating the termination of the subscription?	-->	SIP NOTIFY	4	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
16	The SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	

5.1.3.3.3 Specific message contents

Table 5.1.3.3.3-1: SIP SUBSCRIBE from the SS (MCDATA Server) (Step 1, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.14-1, conditions MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDATA_PublicSe rviceld_B	The public service identity identifying the controlling MCDATA function owning the MCDATA functional alias		
From				
addr-spec				
user-info and host	tsc_MCDATA_PublicSe rviceld_A	The public service identity identifying the originating participating MCDATA function serving the MCDATA user		
To				
addr-spec				
user-info and host	tsc_MCDATA_PublicSe rviceld_B	The public service identity identifying the controlling MCDATA function owning the MCDATA functional alias		
Expires				
value	"4294967295"	to receive the current status and later notification		
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp- service.ims.icsi.mcdata"			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-body	MCDATA-Info as described in Table 5.1.3.3.3-1A			
MIME body part		SIMPLE-FILTER		
MIME-part-body	Simple-Filter as described in Table 5.1.3.3.3-1B			

Table 5.1.3.3.3-1A: MCDATA-Info in SIP SUBSCRIBE (Table 5.1.3.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdainfo				
mcdainfo-Params				
mcdainfo-request-uri	Encrypted (note) <mcdainfo-request-uri> with mcdainfoURI set to px_MCDATA_ID_FA_A			
mcdainfo-calling-user-id	Encrypted (note) <mcdainfo-calling-user-id> with mcdainfoURI set to px_MCDATA_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.3.2.1-3A.				

Table 5.1.3.3.3-1B: Simple-Filter in SIP SUBSCRIBE (Table 5.1.3.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.6-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
filter-set				
ns-bindings				
ns-binding urn [2]				
prefix	"mcdainfoPIFA10"		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.3.2.2	
urn	"urn:3gpp:ns:mcdainfoPresl nfoFA:1.0"			
filter[1]				
what				
include[1]				
type	Not present			
base	"//pidf:presence/pidf:tupl e[@id=" & px_MCDATA_ID_User_A & "]"		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.3.2.2	

Table 5.1.3.3.3-2: SIP 200 (OK) to SIP SUBSCRIBE (Steps 2 and 14, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1 with condition SUBSCRIBE-RSP				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

Table 5.1.3.3.3-3: SIP NOTIFY from the IUT (MCDData Server) (Steps 3 and 11, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.8-1, conditions MCDATA and PRESENCE-EVENT				
Information Element	Value/remark	Comment	Reference	Condition
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcddata"			
P-Asserted-Identity				
addr-spec				
user-info and host	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function owning the MCDData functional alias		
Message-body				
MIME body part		PIDF	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.2.2.3.5	
MIME-part-body	PIDF as described in Table 5.1.3.3.3-3A			

Table 5.1.3.3.3-3A: PIDF in SIP NOTIFY (Table 5.1.3.3.3-3)

Derivation Path: IETF RFC 3863 [14]				
Information Element	Value/remark	Comment	Reference	Condition
presence			IETF RFC 3863 [14]	
entity attribute	Encrypted URI (note) with value set to px_MCDData_ID_FA_A			
tuple				
id attribute	Encrypted URI (note) with value set to px_MCDATA_ID_User_A			
status				
functionalAlias	not present	MCDData extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.3.1	
contact	not present			
note	not present			
timestamp	not present			
note	not present			
p-id-fa	not present			
NOTE: Encrypted attribute as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.13.3-1.				

Table 5.1.3.3.3-4: SIP NOTIFY from the IUT (MCDData Server) (Step 15, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.3.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Subscription-State			IETF RFC 6665 [11]	
substate-value	"terminated"			
expires	not present			

Table 5.1.3.3.3-5: SIP NOTIFY from the IUT (MCData Server) (Step 7, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.3.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME body part		PIDF	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.2.2.3.5	
MIME-part-body	PIDF as described in Table 5.1.3.3.3-5A			

Table 5.1.3.3.3-5A: PIDF in SIP NOTIFY (Table 5.1.3.3.3-5)

Derivation Path: Table 5.1.3.3.3-3A				
Information Element	Value/remark	Comment	Reference	Condition
presence			IETF RFC 3863 [14]	
tuple				
status				
functionalAlias				
user	Encrypted URI (note) with value set to px_MCX_Client_A_ID			
functionalAliasID	not present			
status	not present			
expires	Current time plus the value set in the Expires header of the SIP PUBLISH response.		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.2.2.3.5	
p-id-fa	same value as received in the SIP PUBLISH message		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.2.2.3.5	
NOTE: Encrypted attribute as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1) Table 5.5.13.3-1.				

Table 5.1.3.3.3-6: SIP 200 (OK) to SIP NOTIFY (Steps 4, 8, 12 and 16, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

Table 5.1.3.3.3-7: SIP SUBSCRIBE from the SS (MCData Server) (Step 13, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.3.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	same URI as the IUT (MCData Server) has sent earlier in the Contact header of a message within the same dialog	Contact URI of the recipient of the previous 200 OK		
Expires				
value	"0"			

Table 5.1.3.3.3-8: SIP PUBLISH from the SS (MCDData Server) (Step 5, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.11-1, condition PRESENCE-EVENT				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServ iceld_B	The public service identity identifying the controlling MCDData function owning the MCDData functional alias		
From				
addr-spec				
user-info and host	tsc_MCDData_PublicServ iceld_A	The public service identity identifying the originating participating MCDData function serving the MCDData user		
To				
addr-spec				
user-info and host	tsc_MCDData_PublicServ iceld_B	The public service identity identifying the controlling MCDData function owning the MCDData functional alias		
Expires				
value	"4294967295"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp- service.ims.icsi.mcdata"			
P-Asserted-Identity				
addr-spec				
user-info and host	tsc_MCDData_PublicServ iceld_A	The public service identity identifying the originating participating MCDData function serving the MCDData user		
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.1.3.3.3-1A			
MIME body part		PIDF		
MIME-part-body	PIDF as described in Table 5.1.3.3.3-8A			

Table 5.1.3.3.3-8A: PIDF in SIP PUBLISH (Table 5.1.3.3.3-8)

Derivation Path: Table 5.1.3.3.3-5A				
Information Element	Value/remark	Comment	Reference	Condition
presence			IETF RFC 3863 [14]	
tuple				
status				
functionalAlias		MCDData extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.3.1	
expires	not present			
p-id-fa	any allowed value		ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.2.2.3.5	

Table 5.1.3.3.3-9: SIP PUBLISH from the SS (MCDATA Server) (Step 9, Table 5.1.3.3.2-1)

Derivation Path: Table 5.1.3.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Expires				
value	"0"			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-body	MCDATA-Info as described in Table 5.1.3.3.3-1A			
MIME body part		PIDF		
MIME-part-body	PIDF as described in Table 5.1.3.3.3-9A			

Table 5.1.3.3.3-9A: PIDF in SIP PUBLISH (Table 5.1.3.3.3-9)

Derivation Path: Table 5.1.3.3.3-8A				
Information Element	Value/remark	Comment	Reference	Condition
presence			IETF RFC 3863 [14]	
tuple				
status				
functionalAlias	not present	MCDATA extension	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 22.3.1	

Table 5.1.3.3.3-10: SIP 200 (OK) to SIP PUBLISH (Steps 6 and 10, Table 5.1.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1 with condition PUBLISH-RSP				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route				Not present

5.1.4 MCDATA Server - MCDATA Server / Configuration / Functional Alias / Functional alias status determination / Activate functional alias / Deactivate functional alias / Participating server

5.1.4.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS-UE1 (MCDATA Client) and SS (MCDATA Server) }
ensure that {
  when { IUT (MCDATA Server) subscribes to determine the status of the functional alias }
  then { IUT (MCDATA Server) sends a SIP SUBSCRIBE message requesting the functional alias status
updates to SS (MCDATA Server) and sends a SIP 200 (OK) after reception of SIP NOTIFY message from
SS (MCDATA Server) informing about functional alias not being activated }
}
```

(2)

```
with { IUT (MCDATA Server) subscribed to functional alias status }
ensure that {
  when { SS-UE1 (MCDATA Client) sends a SIP PUBLISH message to IUT (MCDATA Server) requesting the
activation of functional alias }
  then { IUT (MCDATA Server) forwards the SIP PUBLISH message to SS (MCDATA Server) and replies
with a SIP 200 (OK) to SS-UE1 (MCDATA Client) and sends a SIP 200 (OK) after the reception of a SIP
NOTIFY message from SS (MCDATA Server) informing about functional alias being activated }
}
```

(3)

with { IUT (MCData Server) subscribed to functional alias status **and** SS (MCData Server) having activated functional alias of the user }
ensure that {
 when { SS-UE1 (MCData Client) sends a SIP PUBLISH message requesting the deactivation of functional alias }
 then { IUT (MCData Server) forwards the SIP PUBLISH message to SS (MCData Server) **and** replies with a SIP 200 (OK) to SS-UE1 (MCData Client) **and** sends a SIP 200 (OK) after the reception of a SIP NOTIFY message from SS (MCData Server) informing about the functional alias status change }
 }

(4)

with { IUT (MCData Server) subscribed to functional alias status **and** SS (MCData Server) having deactivated functional alias of the user }
ensure that {
 when { IUT (MCData Server) de-subscribes from the functional alias status determination }
 then { IUT (MCData Server) sends a SIP SUBSCRIBE message requesting de-subscription from functional alias status updates to SS (MCData Server) **and** sends SIP 200 (OK) after the reception of a SIP NOTIFY message from SS (MCData Server) informing about the subscription termination }
 }

5.1.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 22.2.1.2, 22.2.2.2.3, 22.2.2.2.6, 22.2.2.2.7 and 22.2.2.3.5. Unless otherwise stated, these are Rel-16 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.1.2]

"In the SIP PUBLISH request, the MCData client:

- 1) shall set the Request-URI to the public service identity identifying the originating participating MCData function serving the MCData user;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCData client shall include the <mcdata-request-uri> element set to the MCData ID of the MCData user;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7];
- 4) if the MCData client requests to activate one or more functional aliases, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if the MCData client requests to deactivate one or more functional aliases, shall set the Expires header field according to IETF RFC 3903 [34], to zero; and

NOTE 3: Activation and deactivation of functional alias cannot be performed with the same PUBLISH request.

- 6) shall include an application/pdf+xml MIME body indicating per-user functional alias information according to subclause 22.3.1. In the MIME body, the MCData client:
 - a) shall include all functional aliases where the MCData user requests activation for the MCData ID;
 - b) shall include the MCData client ID of the targeted MCData client;
 - c) shall not include the "status" attribute and the "expires" attribute in the <functionalalias> element;
 - d) if the MCData client has received an indication that take over of a functional alias is possible and intends to take over a functional alias, shall include a <take-over> child element set to "true"; and
 - e) shall set the <p-id-fa> child element of the <presence> root element to a globally unique value.

The MCData client shall send the SIP PUBLISH request according to TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.2.3]

"Upon receiving a SIP PUBLISH request such that:

- 1) Request-URI of the SIP PUBLISH request contains either the public service identity identifying the originating participating MCDData function serving the MCDData user, or the public service identity identifying the terminating participating MCDData function serving the MCDData user;
- 2) the SIP PUBLISH request contains an application/vnd.3gpp.mcdata-info+xml MIME body containing the <mcdata-request-uri> element which identifies an MCDData ID served by the MCDData server;
- 3) the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) the Event header field of the SIP PUBLISH request contains the "presence" event type; and
- 5) SIP PUBLISH request contains an application/pidf+xml MIME body indicating per-user functional alias information according to subclause 22.3.1;

then the MCDData server:

- 1) shall identify the served MCDData ID in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP PUBLISH request;
- 2) if the Request-URI of the SIP PUBLISH request contains the public service identity identifying the originating participating MCDData function serving the MCDData user, shall identify the originating MCDData ID from public user identity in the P-Asserted-Identity header field of the SIP PUBLISH request;
- 3) if the Request-URI of the SIP PUBLISH request contains the public service identity identifying the terminating participating MCDData function serving the MCDData user, shall identify the originating MCDData ID in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP PUBLISH request;
- ...
- 6) if the Expires header field of the SIP PUBLISH request has nonzero value, shall determine the candidate expiration interval to according to IETF RFC 3903 [34];
- 7) if the Expires header field of the SIP PUBLISH request has zero value, shall set the candidate expiration interval to zero;
- 8) shall respond with SIP 200 (OK) response to the SIP PUBLISH request according to TS 24.229 [5], IETF RFC 3903 [34]. In the SIP 200 (OK) response, the MCDData server:
 - a) shall set the Expires header field according to IETF RFC 3903 [34], to the candidate expiration time;
- 9) if the "entity" attribute of the <presence> element of the application/pidf+xml MIME body of the SIP PUBLISH request is different than the served MCDData ID, shall not continue with the rest of the steps;
- 10) shall consider an MCDData user information entry such that:
 - a) the MCDData user information entry is in the list of MCDData user information entries described in subclause 22.2.2.2.2; and
 - b) the MCDData ID of the MCDData user information entry is equal to the served MCDData ID;
 as the served MCDData user information entry;
- 11) shall consider a copy of the list of the MCDData functional alias entries of the served MCDData user information entry as the served list of the MCDData functional alias information entries;

- 12) if the candidate expiration interval is nonzero, shall construct the candidate list of the MCDData functional alias entries as follows:
- a) for each functional alias ID which has a functional alias information entry in the served list of the functional alias information entries, such that the expiration time of the functional alias information entry has not expired yet, and which is indicated in a "functionalAliasID" attribute of a <functionalAlias> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:
 - i) shall copy the functional alias information entry into a new functional alias information entry of the candidate list of the functional alias information entries;
 - ii) if the functional alias status of the functional alias information entry is "deactivating" or "deactivated", shall set the functional alias status of the new functional alias information entry to the "activated" state and shall reset the activating p-id-fa of the new functional alias information entry; and
 - iii) shall set the expiration time of the new functional alias information entry to the current time increased with the candidate expiration interval;
 - b) for each functional alias ID which has a functional alias information entry in the served list of the functional alias information entries, such that the expiration time of the functional alias information entry has not expired yet, and which is not indicated in any "functionalAliasID" attribute of the <functionalAlias> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:
 - i) shall copy the functional alias information entry into a new functional alias information entry of the candidate list of the functional alias information entries; and
 - ii) if the functional alias status of the functional alias information entry is "activated" or "activating":
 - shall set the functional alias status of the new functional alias entry to the "deactivating" state; and
 - shall set the expiration time of the new functional alias information entry to the current time increased with twice the value of timer F; and
 - c) for each functional alias ID:
 - i) which does not have a functional alias information entry in the served list of the functional alias entries; or
 - ii) which has a functional alias information entry in the served list of the functional alias information entries, such that the expiration time of the functional alias information entry has already expired;

and which is indicated in a "functionalAliasID" element of the <functionalAlias> element of the <status> element of the <tuple> element of the <presence> root element of the application/pdf+xml MIME body of the SIP PUBLISH request:

 - i) shall add a new functional alias information entry in the candidate list of the functional alias information list for the functional alias ID;
 - ii) shall set the functional alias status of the new functional alias information entry to the "activating" state;
 - iii) shall set the expiration time of the new functional alias information entry to the current time increased with the candidate expiration interval; and
 - iv) shall reset the activating p-id-fa of the new functional alias information entry;

- 13) if the candidate expiration interval is zero, constructs the candidate list of the functional alias information entries as follows:
 - a) for each functional alias ID which has an entry in the served list of the functional alias information entries:
 - i) shall copy the functional alias entry of the served list of the functional alias information into a new functional alias information entry of the candidate list of the functional alias information entries;
 - ii) shall set the functional alias status of the new functional alias information entry to the "de-activating" state; and
 - iii) shall set the expiration time of the new functional alias information entry to the current time increased with twice the value of timer F;
- 14) shall replace the list of the functional alias information entries stored in the served MCDData user information entry with the candidate list of the functional alias information entries;
- 15) shall perform the procedures specified in subclause 22.2.2.2.6 for the served MCDData ID and each functional alias:
 - a) which does not have a functional alias information entry in the served list of the functional alias information entries and which has a functional alias information entry in the candidate list of the functional alias information entries with the functional alias status set to the "activating" state;
 - b) which has a functional alias information entry in the served list of the functional alias information entries with the expiration time already expired, and which has a functional alias information entry in the candidate list of the functional alias information entries with the functional alias status set to the "activating" state;
 - c) which has a functional alias information entry in the served list of the functional alias information entries with the functional alias status set to the "deactivating" state or the "deactivated" state and with the expiration time not expired yet, and which has an functional alias information entry in the candidate list of the functional alias information entries with the functional alias status set to the "activating" state; or
 - d) which has a functional alias information entry in the served list of the functional alias information entries with the functional alias status set to the "activated" state and with the expiration time not expired yet, and which has an functional alias information entry in the candidate list of the functional alias information entries with the functional alias status set to the "deactivating" state;
- 16) shall identify the handled p-id-fa in the <p-id-fa> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP PUBLISH request; and
- 17) shall perform the procedures specified in subclause 22.2.2.2.5 for the served MCDData ID."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.2.6]

"In order:

- to send an activation request of a served MCDData ID for a handled functional alias ID;
- to send an deactivation request of a served MCDData ID for a handled functional alias ID;
- to send a take over request of a served MCDData ID for a handled functional alias ID due to take over; or
- to send an activation request of a served MCDData ID for a handled functional alias ID due to near expiration of the previously published information;

the MCDData server shall generate a SIP PUBLISH request according to TS 24.229 [5], IETF RFC 3903 [34] and IETF RFC 3856 [39]. In the SIP PUBLISH request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled functional alias ID;

- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled functional alias ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if sending an activation request, shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295;

NOTE 1: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if sending an deactivation request, shall set the Expires header field according to IETF RFC 3903 [34], to zero;
- 6) shall include an P-Asserted-Identity header field set to the public service identity of the MCDData server according to 3GPP TS 24.229 [5];
- 7) shall set the current p-id-fa to a globally unique value;
- 8) shall consider an MCDData user information entry such that:
 - a) the MCDData user information entry is in the list of MCDData user information entries described in clause 22.2.2.2.2; and
 - b) the MCDData ID of the MCDData user information entry is equal to the served MCDData ID; as the served MCDData user information entry;
- 9) for each functional alias information entry such that:
 - a) the functional alias information entry has the "activating" functional alias status, the functional alias ID set to the handled functional alias ID, the expiration time has not expired yet and the activating p-id-fa is not set; and
 - b) the functional alias information entry is in the list of the functional alias information entries of the served MCDData user information entry;

shall set the activating p-id-fa of the functional alias information entry to the current p-id-fa; and
- 10) shall include an application/pdf+xml MIME body indicating per-functional alias status information constructed according to clause 22.3.1.2. The MCDData server shall indicate all served MCDData user IDs, such that:
 - a) the functional alias status is set to "activating" with or without "take-over" element or "activated", and the expiration time has not expired yet in a functional alias information entry with the functional alias ID set to the handled functional alias;
 - b) the functional alias information entry is in the list of the functional alias information entries of an MCDData user information entry; and
 - c) the MCDData user information entry is a served MCDData user information entry.

The MCDData server shall set the <p-id-fa> child element of the <presence> root element to the current p-id-fa.

The MCDData server shall not include the "expires" attribute in the <functionalAlias> element.

The MCDData server shall send the SIP PUBLISH request according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.2.7]

"In order to discover whether a served MCDData user successfully activated a handled functional alias in the MCDData server owning the functional alias, the MCDData server shall generate an initial SIP SUBSCRIBE request according to TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36].

In the SIP SUBSCRIBE request, the MCDData server:

- 1) shall set the Request-URI to the public service identity of the controlling MCDData function associated with the handled functional alias;
- 2) shall include an application/vnd.3gpp.mcdata-info+xml MIME body. In the application/vnd.3gpp.mcdata-info+xml MIME body, the MCDData server:
 - a) shall include the <mcdata-request-uri> element set to the handled functional alias ID; and
 - b) shall include the <mcdata-calling-user-id> element set to the served MCDData ID;
- 3) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata" (coded as specified in TS 24.229 [5]), in a P-Asserted-Service header field according to IETF RFC 6050 [7];
- 4) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 2: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 5) if the MCDData server wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- 6) shall include an Accept header field containing the application/pdf+xml MIME type;
- 7) shall include an Events header field set to "presence"; and
- 8) shall include an application/simple-filter+xml MIME body indicating per-user restrictions of presence event package notification information according to subclause 22.3.2, indicating the served MCDData ID.

In order to re-subscribe or de-subscribe, the MCDData server shall generate an in-dialog SIP SUBSCRIBE request according to TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36]. In the SIP SUBSCRIBE request, the MCDData server:

- 1) if the MCDData server wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295;

NOTE 3: 4294967295, which is equal to $2^{32}-1$, is the highest value defined for Expires header field in IETF RFC 3261 [4].

- 2) if the MCDData server wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [36], to zero;
- 3) shall include an Events header field set to "presence"; and
- 4) shall include an Accept header field containing the application/pdf+xml MIME type.

Upon receiving a SIP NOTIFY request according to TS 24.229 [5], IETF RFC 3856 [39], and IETF RFC 6665 [36], if SIP NOTIFY request contains an application/pdf+xml MIME body indicating per-functional alias information constructed according to subclause 22.3.1, then the MCDData server:

- 1) for each served MCDData ID such that the application/pdf+xml MIME body of SIP NOTIFY request contains:
 - a) a <tuple> element of the root <presence> element;
 - b) the "id" attribute of the <tuple> element indicating the served MCDData ID;
 - c) an <functionalAlias> child element of the <status> element of the <tuple> element; and

- d) the "expires" attribute of the <functionalAlias> element indicating expiration of activation of functional alias;

perform the following:

- a) if a functional alias information entry exists such that:
- i) the functional alias information entry has the "activating" functional alias status, the functional alias ID set to the handled functional alias ID, and the expiration time has not expired yet;
 - ii) the functional alias information entry is in the list of the functional alias information entries of an MCDData user information entry with the MCDData ID set to the served MCDData ID; and
 - iii) the MCDData user information entry is in the list of MCDData user information entries described in clause 22.2.2.2.2;

shall set the functional alias status of the functional alias information entry to "activated"; and

shall set the next publishing time of the functional alias information entry to the current time and half of the time between the current time and the expiration of the functional alias; and

2) for each functional alias information entry such that:

- a) the functional alias information entry has the "activated" functional alias status or the "deactivating" functional alias status, the functional alias ID set to the handled functional alias ID, and the expiration time has not expired yet;
- b) the functional alias information entry is in the list of the functional alias information entries of an MCDData user information entry with the MCDData ID set to a served MCDData ID; and
- c) the MCDData user information entry is in the list of MCDData user information entries described in clause 22.2.2.2.2; and

for which the application/pidf+xml MIME body of SIP NOTIFY request does not contain:

- a) a <tuple> element of the root <presence> element;
- b) the "id" attribute of the <tuple> element indicating the served MCDData ID; and
- c) an <functionalAlias> child element of the <status> child element of the <tuple> element.

perform the following:

- a) shall set the functional alias status of the functional alias information entry to "deactivated"; and
- b) shall set the expiration time of the functional alias information entry to the current time; and

3) if a <p-id-fa> element is included in the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request, then for each functional alias information entry such that:

- a) the functional alias information entry has the "activating" functional alias status, the functional alias ID set to the handled functional alias ID, the expiration time has not expired yet and with the activating p-id-fa set to the value of the <p-id-fa> element;
- b) the functional alias information entry is in the list of the functional alias information entries of an MCDData user information entry with the MCDData ID set to a served MCDData ID; and
- d) the MCDData user information entry is in the list of MCDData user information entries described in clause 22.2.2.2.2; and

for which the application/pidf+xml MIME body of SIP NOTIFY request does not contain:

- a) a <tuple> element of the root <presence> element;
- b) the "id" attribute of the <tuple> element indicating the served MCDData ID; and
- c) an <functionalAlias> child element of the <status> child element of the <tuple> element;

perform the following:

- a) shall set the functional alias status of the functional alias information entry to "deactivated"; and
- b) shall set the expiration time of the functional alias information entry to the current time."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 22.2.2.3.5]

"In order to notify the subscriber identified by the handled MCDData ID about changes of the functional alias status of the served functional alias ID, the MCDData server:

- 1) shall consider a functional alias information entry such that:
 - a) the functional alias information entry is in the list of functional alias information entries described in clause 22.2.2.3.2; and
 - b) the functional alias ID of the functional alias information entry is equal to the served functional alias ID;
- 2) shall consider an MCDData user information entry such:
 - a) the MCDData user information entry is in the list of the MCDData user information entries of the served functional alias information entry; and
 - b) the MCDData ID of the MCDData user information entry is equal to the handled MCDData ID;

as the served MCDData user information entry;
- 3) shall generate an application/pidf+xml MIME body indicating per-functional alias information according to clause 22.3.1 and the served list of the served MCDData user information entry of the functional alias information entry with following clarifications:
 - a) the MCDData server shall include the "expires" attribute in the <functionalAlias> element; and
 - b) if this procedure is invoked by procedure in subclause 22.2.2.3.3 where the handled p-id-fa was identified, the MCDData server shall set the <p-id-fa> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request to the handled p-id-fa value; and
- 4) send a SIP NOTIFY request according to 3GPP TS 24.229 [5], and IETF RFC 6665 [36] for the subscription created in clause 22.2.2.3.4. In the SIP NOTIFY request, the MCDData server shall include the generated application/pidf+xml MIME body indicating per-functional alias information."

5.1.4.3 Test description

5.1.4.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server):
 - SS (MCDData Server) provides the controlling MCDData function.
- SS-UE1 (MCDData client).

IUT:

- IUT (MCDData Server):
 - IUT (MCDData Server) provides the participating MCDData function.
- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to the SS (MCDData Server) and to the SS-UE1 (MCDData client).
- The SS-UE1 (MCDData client) is registered and authorized to use the MCDData system.
- Functional Alias A is controlled by the controlling MCDData function.

5.1.4.3.2 Test procedure sequence

Table 5.1.4.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the IUT (MCDData Server) subscribe to functional alias status determination and to get later notification of status changes of a functional alias.	-	-	-	-
2	Check: Does the IUT (MCDData Server) send a SIP SUBSCRIBE message request to determine the current status of the functional alias?	-->	SIP SUBSCRIBE	1	P
3	The SS (MCDData Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message	<--	SIP 200 (OK)	-	-
4	The SS (MCDData Server) sends a SIP NOTIFY message informing about the status of the functional alias.	<--	SIP NOTIFY	-	-
5	Check: Does the IUT (MCDData Server) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
6	The SS-UE1 (MCDData client) sends a SIP PUBLISH message to activate the functional alias for user A.	<--	SIP PUBLISH	-	-
7	Check: Does the IUT (MCDData Server) send a SIP PUBLISH message to the SS (MCDData Server) to activate the functional alias for user A?	-->	SIP PUBLISH	2	P
8	The SS (MCDData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
9	Check: Does the IUT (MCDData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
10	The SS (MCDData Server) sends a SIP NOTIFY informing about the functional alias activation.	<--	SIP NOTIFY	-	-
11	Check: Does the IUT (MCDData Server) respond with a SIP 200 (OK)?	-->	SIP 200 (OK)	2	P
12	The SS-UE1 (MCDData client) sends a SIP PUBLISH message to deactivate the functional alias for user A.	<--	SIP PUBLISH	-	-
13	Check: Does the IUT (MCDData Server) send a SIP PUBLISH message to the SS (MCDData Server) to deactivate the functional alias for user A?	-->	SIP PUBLISH	3	P
14	The SS (MCDData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
15	Check: Does the IUT (MCDData Server) respond to the SIP PUBLISH message with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
16	The SS (MCDData Server) sends a SIP NOTIFY informing about the functional alias deactivation.	<--	SIP NOTIFY	-	-
17	Check: Does the IUT (MCDData Server) respond with a SIP 200 (OK)?	-->	SIP 200 (OK)	3	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
18	Make the IUT (MCData Server) de-subscribe from functional alias status determination.	-	-	-	-
19	Check: Does the IUT (MCData Server) send a SIP SUBSCRIBE message request to de-subscribe from functional alias status changes of the functional alias?	-->	SIP SUBSCRIBE	4	P
20	The SS (MCData Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message	<--	SIP 200 (OK)	-	-
21	The SS (MCData Server) sends a SIP NOTIFY message indicating the termination of the subscription	<--	SIP NOTIFY	-	-
22	Check: Does the IUT (MCData Server) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P

5.1.4.3.3 Specific message contents

Table 5.1.4.3.3-1: SIP SUBSCRIBE from the IUT (MCData Server) (Step 2, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-1

Table 5.1.4.3.3-2: SIP 200 (OK) to SUBSCRIBE (Steps 3 and 20, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-2

Table 5.1.4.3.3-3: SIP NOTIFY from the SS (MCData Server) (Steps 4 and 16, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-3

Table 5.1.4.3.3-4: SIP NOTIFY from the SS (MCData Server) (Step 10, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-5

Table 5.1.4.3.3-5: SIP NOTIFY from the SS (MCData Server) (Step 21, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-4

Table 5.1.4.3.3-6: SIP 200 (OK) to NOTIFY (Steps 5, 11, 17 and 22, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-6

Table 5.1.4.3.3-7: SIP SUBSCRIBE from the IUT (MCData Server) (Step 19, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-7

Table 5.1.4.3.3-8: SIP PUBLISH from the IUT (MCData Server) (Step 7, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-8

Table 5.1.4.3.3-9: SIP PUBLISH from the IUT (MCData Server) (Step 13, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-9

Table 5.1.4.3.3-10: SIP PUBLISH from the SS-UE1 (MCData Client) (Step 6, Table 5.1.4.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Annex A, Table A.4.14.4-1
--

Table 5.1.4.3.3-11: SIP PUBLISH from the SS-UE1 (MCData Client) (Step 12, Table 5.1.4.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 5.7.3.3-1
--

Table 5.1.4.3.3-12: SIP 200 (OK) to PUBLISH (Steps 8 and 14, Table 5.1.4.3.2-1)

Derivation Path: Table 5.1.3.3.3-10

Table 5.1.4.3.3-13: SIP 200 (OK) to PUBLISH (Steps 9 and 15, Table 5.1.4.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.17.1.2-1, condition PUBLISH-RSP
--

5.2 Short Data Service

5.2.1 MCDATA Server - MCDATA Server / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / Controlling server

5.2.1.1 Test Purpose (TP)

(1)

```
with { IUT (MCData Server) connected to SS (MCData Server) }
ensure that {
  when { SS (MCData Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "DELIVERY" disposition request from SS-
UE1 (MCData Client) to IUT (MCData Server) }
  then { IUT (MCData Server) forwards the SIP MESSAGE message to SS (MCData Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCData
Server) providing the originating participating MCDATA function }
}
```

(2)

```
with { IUT (MCData Server) having forwarded the SIP MESSAGE message containing the one-to-one
standalone SDS }
ensure that {
  when { SS (MCData Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the disposition notification of "DELIVERED" to IUT (MCData Server) }
  then { IUT (MCData Server) forwards the SIP MESSAGE message to SS (MCData Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCData
Server) providing the originating participating MCDATA function }
}
```

(3)

```
with { IUT (MCData Server) connected to SS (MCData Server) }
ensure that {
  when { SS (MCData Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "READ" disposition request from SS-UE1
(MCData Client) to IUT (MCData Server) }
  then { IUT (MCData Server) forwards the SIP MESSAGE message to SS (MCData Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCData
Server) providing the originating participating MCDATA function }
}
```

(4)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one
standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the disposition notification of "READ" to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

(5)

```

with { IUT (MCDATA Server) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "DELIVERY AND READ" disposition request
from SS-UE1 (MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

(6)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one
standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the disposition notification of "DELIVERED AND READ" to IUT (MCDATA
Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

5.2.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 9.2.2.2.1, 9.2.2.2.2, 9.2.1.2, 9.2.1.3, 9.2.2.3.1, 9.2.2.4.1, 9.2.2.4.2, 12.2.1.1, 6.2.3.1, 12.2.2.1, 12.2.2.2, 6.3.2.1 and 12.2.3. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.2.1]

"The MCDATA client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDATA client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- 2) if a one-to-one standalone SDS message is to be sent, shall insert in the SIP MESSAGE request:
 - a) an application/resource-lists+xml MIME body with the MCDATA ID of the target MCDATA user, according to rules and procedures of IETF RFC 4826 [9];
 - b) an application/vnd.3gpp.mcddata-info+xml MIME body with:
 - i) a <request-type> element set to a value of "one-to-one-sds"; and
 - ii) if the MCDATA client is aware of active functional aliases and if an active functional alias is to be included in the SIP MESSAGE request, the <functional-alias-URI> element set to the URI of the used functional alias; and
 - c) if end-to-end security is required and the security context does not exist or if the existing security context has expired, an application/mike MIME body with the MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [26]. The MCDATA client:
 - i) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [26];

- ii) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [26];
- iii) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect one-to-one communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [26];
- iv) shall encrypt the PCK to a UID associated to the MCDData client using the MCDData ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [26];
- v) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [26]; and
- vi) shall add the MCDData ID of the originating MCDData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];
- vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCDData user's signing key provided in the keying material together with a time related parameter; and
- viii) shall include the MIKEY-SAKKE I_MESSAGE in an application/mikey MIME body as specified in 3GPP TS 33.180 [26];

...

- 4) shall generate a standalone SDS message as specified in subclause 6.2.2.1; and
- 5) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.2.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for terminating MCDData client", the MCDData client:

...

- 4) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];
- 5) shall send the SIP 200 (OK) response towards the MCDData server according to rules and procedures of 3GPP TS 24.229 [5]; and
- 6) shall handle the received message as specified in subclause 9.2.1.2."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.1.2]

"...

- 10) if the received SDS SIGNALLING PAYLOAD message contains an SDS disposition request type IE shall follow the procedures in subclause 9.2.1.3."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.1.3]

"To handle the disposition requests, the MCDData client:

- 1) If the SDS disposition request type IE is set to:
 - a) "DELIVERY" then, shall send a delivered notification as described in subclause 12.2.1.1;
 - b) "READ", shall send a read notification as described in subclause 12.2.1.1, when a display indication is received; or
 - c) "DELIVERY AND READ" then, shall start timer TDU1 (delivery and read).

Upon receiving a display indication before timer TDU1 (delivery and read) expires, the MCDData client:

- 1) shall stop timer TDU1 (delivery and read); and
- 2) shall send a delivered and read notification as described in subclause 12.2.1.1.

Upon expiry of timer TDU1 (delivery and read), the MCDData client:

- 1) shall send a delivered notification as described in subclause 12.2.1.1; and
- 2) upon receiving a display indication, send a read notification as described in subclause 12.2.1.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDData function", the participating MCDData function:

...

- 4) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is:

...

- b) set to a value of "one-to-one-sds", shall determine the public service identity of the controlling MCDData function hosting the one-to-one standalone SDS service for the calling user;

...

- 9) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 10) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;
- 11) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 12) shall include the MCDData ID of the originating user in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;
- ...
- 13) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5].

..."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1]

"This subclause describes the procedures for sending a SIP MESSAGE from the controlling MCDData function and is initiated by the controlling MCDData function as a result of an action in subclause 9.2.2.4.2.

The controlling MCDData function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];

- 2) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.sds* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) *application/vnd.3gpp.mcdata-info+xml* MIME body;
 - b) *application/vnd.3gpp.mcdata-signalling* MIME body; and
 - c) *application/vnd.3gpp.mcdata-payload* MIME body
- 5) in the *application/vnd.3gpp.mcdata-info+xml* MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and

...
- 6) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;
- 7) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 8) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
- 9) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function:

- ...
- 3) shall decode the contents of the *application/vnd.3gpp.mcdata-signalling* MIME body contained in the SIP MESSAGE;
 - 4) if the *application/vnd.3gpp.mcdata-signalling* MIME body contains a SDS SIGNALLING PAYLOAD message with a SDS disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the SDS SIGNALLING PAYLOAD message;
- NOTE: The controlling MCDData function uses the Conversation ID and Message ID for correlation with disposition notifications.
- 5) if the <request-type> element in the *application/vnd.3gpp.mcdata-info+xml* MIME body of the SIP MESSAGE request is set to a value of "one-to-one-sds" and:

...

 - b) the SIP MESSAGE request:

...

 - ii) contains an *application/resource-lists* MIME body with exactly one <entry> element, shall send a SIP MESSAGE request to the MCDData user identified in the <entry> element of the MIME body, as specified in subclause 9.2.2.4.1;

...

- 7) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for standalone SDS for controlling MCDData function"; and
- 8) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.1.1]

"The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- 2) shall follow the rules specified in subclause 6.4 for the handling of MIME bodies in a SIP message when processing the remaining steps in this subclause;
- 3) shall insert in the SIP MESSAGE request an application/resource-lists+xml MIME body containing the MCDData ID of the targeted MCDData user, according to rules and procedures of IETF RFC 5366 [18];
- ...
- 6) if requiring to send an SDS notification, shall generate an SDS NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.1;
- ...
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.3.1]

"In order to generate an SDS notification, the MCDData client:

- 1) shall generate an SDS NOTIFICATION message as specified in subclause 15.1.5; and
- 2) shall include in the SIP request, the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1.

When generating an SDS NOTIFICATION message as specified in subclause 15.1.5, the MCDData client:

- 1) if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED" as specified in subclause 15.2.5;
- 2) if sending a read notification, shall set the SDS disposition notification type IE as "READ" as specified in subclause 15.2.5;
- 3) if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ" as specified in subclause 15.2.5;
- 4) if the SDS message could not be delivered to the user or application (e.g. due to lack of storage), shall set the SDS disposition notification type IE as "UNDELIVERED" as specified in subclause 15.2.5;
- 5) shall set the Date and time IE to the current time to as specified in subclause 15.2.8;
- 6) shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message as specified in subclause 15.2.9;
- 7) shall set the Message ID to the value of the Message ID that was received in the SDS message as specified in subclause 15.2.10;
- 8) if the SDS message was destined for the user, shall not include an Application ID IE (as specified in subclause 15.2.7) and shall not include an Extended application ID IE (as specified in subclause 15.2.24); and
- 9) if the SDS message was destined for an application, shall include:

- a) an Application ID IE set to the value of the Application ID that was included in the SDS message as specified in subclause 15.2.3; or
- b) an Extended application ID IE set to the value of the Extended application ID that was included in the SDS message as specified in subclause 15.2.24."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the participating MCDData function:

...

- 2) shall determine the MCDData ID of the calling user from the public user identity in the P-Asserted-Identity header field of the SIP MESSAGE request;

...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function;

NOTE: How the participating MCDData function determines the controlling MCDData function to forward notification message is out of scope of the present document.

- 9) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10) if not already included as part of step 8) above, shall include an application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP MESSAGE request, containing an <mcdata-calling-user-id> element set to the MCDData ID of the originating user;
- 11) if the SIP MESSAGE is a "SIP MESSAGE request for SDS disposition notification for MCDData server ", shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

...

- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5].

..."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.2]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for terminating MCDData client"; or
- "SIP MESSAGE request for FD disposition notification for terminating MCDData client";

the participating MCDData function:

...

- 2) shall use the MCDData ID present in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and the public user identity;

...

- 4) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- 5) if sending an SDS disposition notification, shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

...

- 6) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 2xx, 4xx, 5xx or 6xx response to the outgoing SIP MESSAGE request, the participating MCDData function shall forward the SIP response to the controlling MCDData function."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.3.2.1]

"The participating MCDData function shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] and:

- 1) shall include in the SIP MESSAGE request all Accept-Contact header fields and all Reject-Contact header fields, with their feature tags and their corresponding values along with parameters according to rules and procedures of IETF RFC 3841 [8] that were received (if any) in the incoming SIP MESSAGE request;
- 2) shall set the Request-URI of the outgoing SIP MESSAGE request to the public user identity associated to the MCDData ID of the terminating MCDData user;
- 3) shall populate the outgoing SIP MESSAGE request MIME bodies as specified in subclause 6.4 and
- 4) shall copy the contents of the P-Asserted-Identity header field of the incoming SIP MESSAGE request to the P-Asserted-Identity header field of the outgoing SIP MESSAGE request."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the controlling MCDData function:

...

- 4) shall attempt to correlate the disposition notification to the original SDS or FD request using the values contained in the Conversation ID and Message ID of the SDS NOTIFICATION message or FD NOTIFICATION message contained in the application/vnd.3gpp.mcddata-signalling MIME body of the SIP MESSAGE;

...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) if sending an SDS disposition notification:
 - a) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;

...

- 10) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

NOTE 1: How the controlling MCDData function finds the address of the terminating MCDData participating function is out of the scope of the current release.

- 11) if sending an SDS disposition notification, shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds";

...

- 13) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 14) shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcdata-request-uri> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;

...

- 16) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body without an <mcdata-calling-group-id> element shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 17) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5];
- 18) shall generate a SIP 202 (Accepted) response in response to the

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or

...

- 19) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

5.2.1.3 Test description

5.2.1.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
 - SS (MCDData Server) provides the participating MCDData functions.
- SS-UE1 (MCDData client)
 - Simulated behind the SS (MCDData Server).

- SS-UE2 (MCDData client)
- Simulated behind the SS (MCDData Server).

IUT:

- IUT (MCDData Server)
- IUT (MCDData Server) provides the controlling MCDData function.
- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to SS (MCDData Server).
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are registered and authorized to use the MCDData system.
- The <max-payload-size-sds-cplane-bytes> element shall not be present in the MCDData Service Configuration document so that according to ETSI TS 124 484 [3] (3GPP TS 24.484) there is no size limit imposed for the use of C-plane procedures for the SDS message.

5.2.1.3.2 Test procedure sequence

Table 5.2.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), with disposition request "DELIVERY".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 2 and 3 might be performed in parallel.	-	-	-	-
2	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	1	P
3	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	1	P
4	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
5	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 6 and 7 might be performed in parallel.	-	-	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
6	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	2	P
7	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	2	P
8	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
9	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), with disposition request "READ".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 10 and 11 might be performed in parallel.	-	-	-	-
10	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	3	P
11	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	3	P
12	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
13	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 14 and 15 might be performed in parallel.	-	-	-	-
14	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	4	P
15	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	4	P
16	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
17	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 18 and 19 might be performed in parallel.	-	-	-	-
18	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	5	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
19	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	5	P
20	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
21	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED AND READ", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 22 and 23 might be performed in parallel.	-	-	-	-
22	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	6	P
23	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	6	P
24	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
25	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 26 and 27 might be performed in parallel.	-	-	-	-
26	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	5	P
27	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	5	P
28	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
29	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 30 and 31 might be performed in parallel.	-	-	-	-
30	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	2	P
31	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	2	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
32	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
33	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 34 and 35 might be performed in parallel.	-	-	-	-
34	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	4	P
35	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	4	P
36	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-

5.2.1.3.3 Specific message contents

Table 5.2.1.3.3-1: SIP MESSAGE from the SS (MCDData Server) (Step 1, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		Resource lists		
MIME-part-body	Resource-lists as described in Table 5.2.1.3.3-2			
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.1.3.3-3			
MIME body part		MCDData Data signalling message		
MIME-part-body	MCDData Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-3			
MIME body part		MCDData Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-4			

Table 5.2.1.3.3-2: Resource lists (Table 5.2.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.3.1-3
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Table 5.2.1.3.3-3: MCDData-Info (Table 5.2.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3, condition MCD 1to1				
Information Element	Value/remark	Comment	Reference	Condition
mcddata-info				
mcddata-Params				
mcddata-calling-user-id	Encrypted (note) <mcddata-calling-user-id> with mcddataURI set to px_MCDData_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.2.1.3.3-4: SIP MESSAGE from the IUT (MCData Server) (Step 2, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-2				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

Table 5.2.1.3.3-5: SIP MESSAGE from the SS (MCDData Server) (Steps 5 and 29, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceld_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceld_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.1.3.3-6			

Table 5.2.1.3.3-6: MCDData-Info (Table 5.2.1.3.3-5)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_B			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.2.1.3.3-7: SIP MESSAGE from the IUT (MCDData Server) (Steps 6 and 30, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

Table 5.2.1.3.3-8: SIP MESSAGE from the SS (MCDData Server) (Step 9, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS, providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		Resource lists		
MIME-part-body	Resource-lists as described in Table 5.2.1.3.3-2			
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.1.3.3-3			
MIME body part		MCDData Data signalling message		
MIME-part-body	MCDData Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-10			

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
MIME body part		MCDATA Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-4			

Table 5.2.1.3.3-9: SIP MESSAGE from the IUT (MCDATA Server) (Step 10, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDATA_PublicServiceId_A	The public service identity of the MCDATA Server which is simulated by the SS (MCDATA Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDATA Server	Address of the MCDATA Server providing the controlling MCDATA function serving the MCDATA user		
port	protected server port of the MCDATA server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDATA_PublicServiceId_B	The URI of the MCDATA Server providing the controlling function.		
To				
addr-spec	tsc_MCDATA_PublicServiceId_A	The URI of the MCDATA Server which is simulated by the SS (MCDATA Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDATA_PublicServiceId_B	The URI of the MCDATA Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDATA_PublicServiceId_B	The URI of the MCDATA Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

Table 5.2.1.3.3-10: SIP MESSAGE from the SS (MCDData Server) (Steps 13 and 33, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-10				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.1.3.3-6			

Table 5.2.1.3.3-11: SIP MESSAGE from the IUT (MCDData Server) (Steps 14 and 34, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-12				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

Table 5.2.1.3.3-12: SIP MESSAGE from the SS (MCDData Server) (Steps 17 and 25, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		Resource lists		
MIME-part-body	Resource-lists as described in Table 5.2.1.3.3-2			
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.1.3.3-3			
MIME body part		MCDData Data signalling message		
MIME-part-body	MCDData Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-14			
MIME body part		MCDData Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-4			

Table 5.2.1.3.3-13: SIP MESSAGE from the IUT (MCData Server) (Steps 18 and 26, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-14				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

Table 5.2.1.3.3-14: SIP MESSAGE from the SS (MCData Server) (Step 21, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-19				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.2.1.3.3-6			

Table 5.2.1.3.3-15: SIP MESSAGE from the IUT (MCData Server) (Step 22, Table 5.2.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-21				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	

5.2.2 MCDATA Server - MCDATA Server / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / Participating server

5.2.2.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS-UE1(MCDATA Client), SS-UE2 (MCDATA Client) and SS (MCDATA Server) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message containing a one-to-one standalone SDS
with "DELIVERY" disposition request from SS-UE1(MCDATA Client) }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 200 (OK) from SS-UE2
(MCDATA Client) to SS (MCDATA Server) }
}
```

(2)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing one-to-one standalone
SDS to SS-UE2 (MCDATA Client) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message from the SS-UE2 (MCDATA Client)
containing a "DELIVERED" disposition notification }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 200 (OK) from SS-UE1
(MCDATA Client) to SS (MCDATA Server) }
}
```

(3)

```
with { IUT (MCDATA Server) connected to SS-UE1 (MCDATA Client), SS-UE2 (MCDATA Client) and SS
(MCDATA Server) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message containing a one-to-one standalone SDS
with "READ" disposition request from SS-UE1(MCDATA Client) }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 200 (OK) from SS-
UE2 (MCDATA Client) to SS (MCDATA Server) }
}
```

(4)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing one-to-one standalone
SDS to SS-UE2 (MCDATA Client) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message from the SS-UE2 (MCDATA Client)
containing a "READ" disposition notification }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 200 (OK) from SS-UE1
(MCDATA Client) to SS (MCDATA Server) }
}
```

(5)

```
with { IUT (MCDATA Server) connected to SS-UE1 (MCDATA Client), SS-UE2 (MCDATA Client) and SS
(MCDATA Server) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message containing a one-to-one standalone SDS
with "DELIVERY AND READ" disposition request from SS-UE1(MCDATA Client) }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 200 (OK) from SS-UE2
(MCDATA Client) to SS (MCDATA Server) }
}
```

(6)

```

with { IUT (MCDData Server) having forwarded the SIP MESSAGE message containing one-to-one standalone
SDS to SS-UE2 (MCDData Client) }
ensure that {
  when { IUT (MCDData Server) receives a SIP MESSAGE message from the SS-UE2 (MCDData Client)
containing a "DELIVERED AND READ" disposition notification }
  then { IUT (MCDData Server) forwards the SIP MESSAGE message to SS (MCDData Server) and forwards
the SIP MESSAGE message from SS (MCDData Server) to SS-UE1 (MCDData Client) and forwards a SIP 202
(Accepted) from SS (MCDData Server) to SS-UE2 (MCDData Client) and forwards a SIP 200 (OK) from SS-UE1
(MCDData Client) to SS (MCDData Server) }
}

```

5.2.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 9.2.2.2.1, 6.2.4.1, 6.2.2.1, 9.2.2.3.1, 9.2.2.3.2, 9.2.2.4.1, 9.2.2.4.2, 12.2.1.1, 12.2.2.1, 12.2.2.2, 6.3.2.1 and 12.2.3. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.2.1]

"The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- 2) if a one-to-one standalone SDS message is to be sent, shall insert in the SIP MESSAGE request:
 - a) an application/resource-lists+xml MIME body with the MCDData ID of the target MCDData user, according to rules and procedures of IETF RFC 4826 [9];
 - b) an application/vnd.3gpp.mcddata-info+xml MIME body with:
 - i) a <request-type> element set to a value of "one-to-one-sds"; and
 - ii) if the MCDData client is aware of active functional aliases and if an active functional alias is to be included in the SIP MESSAGE request, the <functional-alias-URI> element set to the URI of the used functional alias; and
 - c) if end-to-end security is required and the security context does not exist or if the existing security context has expired, an application/mikey MIME body with the MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [26]. The MCDData client:
 - i) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [26];
 - ii) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [26];
 - iii) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect one-to-one communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [26];
 - iv) shall encrypt the PCK to a UID associated to the MCDData client using the MCDData ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [26];
 - v) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [26]; and
 - vi) shall add the MCDData ID of the originating MCDData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];
 - vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCDData user's signing key provided in the keying material together with a time related parameter; and
 - viii) shall include the MIKEY-SAKKE I_MESSAGE in an application/mikey MIME body as specified in 3GPP TS 33.180 [26];

...

- 4) shall generate a standalone SDS message as specified in subclause 6.2.2.1; and
- 5) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.4.1]

"This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCDData client:

- 1) when sending SDS messages or SDS disposition notifications:
 - a) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];
 - b) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8]; and
 - c) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7] in the SIP MESSAGE request;

...

- 3) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [5]; and
- 4) shall set the Request-URI to the public service identity identifying the participating MCDData function serving the MCDData user."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.2.1]

"In order to generate an SDS message, the MCDData client:

- 1) shall generate an SDS SIGNALLING PAYLOAD message as specified in subclause 15.1.2;
- 2) shall generate a DATA PAYLOAD message as specified in subclause 15.1.4;
- 3) shall include in the SIP request, the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1; and
- 4) shall include in the SIP request, the DATA PAYLOAD message in an application/vnd.3gpp.mcdata-payload MIME body as specified in subclause E.2.

When generating an SDS SIGNALLING PAYLOAD message as specified in subclause 15.1.2, the MCDData client:

- 1) shall set the Date and time IE to the current time as specified in subclause 15.2.8;
- 2) if the SDS message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in subclause 15.2.9;
- 3) if the SDS message continues an existing unfinished conversation, shall set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in subclause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in subclause 15.2.10;
- 5) if the SDS message is in reply to a previously received SDS message, shall include the InReplyTo message ID IE with the Message ID value in the previously received SDS message;
- 6) if the SDS message is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7 and shall not include an Extended application ID IE as specified in subclause 15.2.24;

- 7) if the SDS message is intended for an application on the terminating MCDData client, shall include:
- a) an Application ID IE with a Application ID value representing the intended application as specified in subclause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in subclause 15.2.24;

NOTE: The value chosen for the Application ID value is decided by the mission critical organisation.

- 8) if only a delivery disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY" as specified in subclause 15.2.3;
- 9) if only a read disposition notification is required shall include a SDS disposition request type IE set to "READ" as specified in subclause 15.2.3;
- 10) if both a delivery and read disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY AND READ" as specified in subclause 15.2.3; and
- 11) may set the User location IE to the current location of the UE as specified in subclause 15.2.25.

When generating an DATA PAYLOAD message for SDS as specified in subclause 15.1.4, the MCDData client:

- 1) shall set the Number of payloads IE to the number of Payload IEs that needs to be encoded, as specified in subclause 15.2.12;
- 2) if end-to-end security is required for a one-to-one communication, shall include the Security parameters and Payload IE with security parameters as described in 3GPP TS 33.180 [26]. Otherwise, if end-to-end security is not required for a one-to-one communication, shall include the Payload IE as specified in subclause 15.1.4; and
- 3) for each Payload IE included:
 - a) if the payload is text, shall set the Payload content type as "TEXT" as specified in subclause 15.2.13;
 - b) if the payload is binary data, shall set the Payload content type as "BINARY" as specified in subclause 15.2.13;
 - c) if the payload is hyperlinks, shall set the Payload content type as "HYPERLINKS" as specified in subclause 15.2.13;
 - d) if the payload is location, shall set the Payload content type as "LOCATION" as specified in subclause 15.2.13;
 - e) if payload is enhanced status for a group, shall set the Payload content type as "ENHANCED STATUS" as specified in subclause 15.2.13; and
 - f) shall include the data to be sent in the Payload data."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDData function", the participating MCDData function:

...

- 2) shall determine the MCDData ID of the originating user from the public user identity in the P-Asserted-Identity header field of the SIP MESSAGE request, and shall authorise the calling user;

NOTE: The MCDData ID of the calling user is bound to the public user identity at the time of service authorisation, as documented in subclause 7.3.

...

- 4) if the `<request-type>` element in the `application/vnd.3gpp.mcdata-info+xml` MIME body of the SIP MESSAGE request is:
 - a) set to a value of "group-sds", shall determine the public service identity of the controlling MCDData function associated with the MCDData group identity in the `<mcdata-request-uri>` element of the `application/vnd.3gpp.mcdata-info+xml` MIME body in the SIP MESSAGE request; or
 - b) set to a value of "one-to-one-sds", shall determine the public service identity of the controlling MCDData function hosting the one-to-one standalone SDS service for the calling user;
- ...
- 9) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 10) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;
- 11) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 12) shall include the MCDData ID of the originating user in the `<mcdata-calling-user-id>` element of the `application/vnd.3gpp.mcdata-info+xml` MIME body of the outgoing SIP MESSAGE request;
- 12A) if the incoming SIP MESSAGE request contains an `application/vnd.3gpp.mcdata-info+xml` MIME body that contains a `<functional-alias-URI>` element, shall check if the status of the functional alias is activated for the MCDData ID. If the functional alias status is activated, then the participating MCDData function shall set the `<functional-alias-URI>` element of the `application/vnd.3gpp.mcdata-info+xml` MIME body in the outgoing SIP INVITE request to the received value, otherwise shall not include a `<functional-alias-URI>` element;
- 13) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for terminating participating MCDData function", the participating MCDData function:

...

- 4) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request; and
- 6) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and

- 2) shall send the SIP 200 (OK) response to the controlling MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1]

"This subclause describes the procedures for sending a SIP MESSAGE from the controlling MCDData function and is initiated by the controlling MCDData function as a result of an action in subclause 9.2.2.4.2.

The controlling MCDData function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 2) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) application/vnd.3gpp.mcdata-info+xml MIME body;
 - b) application/vnd.3gpp.mcdata-signalling MIME body; and
 - c) application/vnd.3gpp.mcdata-payload MIME body
- 5) in the application/vnd.3gpp.mcdata-info+xml MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and
 - b) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request was set to a value of "group-sds", shall set the <mcdata-calling-group-id> element to the group identity;
- 6) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;
- 7) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 8) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
- 9) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function:

...

- 4) if the application/vnd.3gpp.mcdata-signalling MIME body contains a SDS SIGNALLING PAYLOAD message with a SDS disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the SDS SIGNALLING PAYLOAD message;

NOTE: The controlling MCDData function uses the Conversation ID and Message ID for correlation with disposition notifications.

- 5) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is set to a value of "one-to-one-sds" and:

...

b) the SIP MESSAGE request:

...

- ii) contains an application/resource-lists MIME body with exactly one <entry> element, shall send a SIP MESSAGE request to the MCDData user identified in the <entry> element of the MIME body, as specified in subclause 9.2.2.4.1;

...

- 7) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for standalone SDS for controlling MCDData function"; and
- 8) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.1.1]

"...

The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- 2) shall follow the rules specified in subclause 6.4 for the handling of MIME bodies in a SIP message when processing the remaining steps in this subclause;
- 3) shall insert in the SIP MESSAGE request an application/resource-lists+xml MIME body containing the MCDData ID of the targeted MCDData user, according to rules and procedures of IETF RFC 5366 [18];
- ...
- 6) if requiring to send an SDS notification, shall generate an SDS NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.1;
- ...
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1]

"...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function;

NOTE: How the participating MCDData function determines the controlling MCDData function to forward notification message is out of scope of the present document.

- 9) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10) if not already included as part of step 8) above, shall include an application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP MESSAGE request, containing an <mcdata-calling-user-id> element set to the MCDData ID of the originating user;
- 11) if the SIP MESSAGE is a "SIP MESSAGE request for SDS disposition notification for MCDData server ", shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

...

- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.2]

"...

- 2) shall use the MCDData ID present in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and the public user identity;

...

- 4) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- 5) if sending an SDS disposition notification, shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

...

- 6) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 2xx, 4xx, 5xx or 6xx response to the outgoing SIP MESSAGE request, the participating MCDData function shall forward the SIP response to the controlling MCDData function."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.3.2.1]

"The participating MCDData function shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] and:

- 1) shall include in the SIP MESSAGE request all Accept-Contact header fields and all Reject-Contact header fields, with their feature tags and their corresponding values along with parameters according to rules and procedures of IETF RFC 3841 [8] that were received (if any) in the incoming SIP MESSAGE request;
- 2) shall set the Request-URI of the outgoing SIP MESSAGE request to the public user identity associated to the MCDData ID of the terminating MCDData user;
- 3) shall populate the outgoing SIP MESSAGE request MIME bodies as specified in subclause 6.4 and
- 4) shall copy the contents of the P-Asserted-Identity header field of the incoming SIP MESSAGE request to the P-Asserted-Identity header field of the outgoing SIP MESSAGE request."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3]

"...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];

8) *if sending an SDS disposition notification:*

- a) *shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;*
- b) *shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8]] in the outgoing SIP MESSAGE request;*

...

10) *shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;*

NOTE 1: How the controlling MCDData function finds the address of the terminating MCDData participating function is out of the scope of the current release.

11) *if sending an SDS disposition notification, shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds";*

...

13) *shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;*

14) *shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcdata-request-uri> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;*

...

16) *if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body without an <mcdata-calling-group-id> element shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request;*

17) *shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5];*

18) *shall generate a SIP 202 (Accepted) response in response to the*

- *"SIP MESSAGE request for SDS disposition notification for MCDData server"; or*
- *"SIP MESSAGE request for FD disposition notification for MCDData server"; and*

19) *shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."*

5.2.2.3 Test description

5.2.2.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
 - SS (MCDData Server) provides the controlling MCDData function.
- SS-UE1 (MCDData client)
- SS-UE2 (MCDData client)

IUT:

- IUT (MCData Server)
- IUT (MCData Server) provides the originating and terminating participating MCData functions.
- The IUT (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCData Server) is connected to SS (MCData Server), to the SS-UE1 (MCData client) and to the SS-UE2 (MCData client).
- The SS-UE1 (MCData client) and the SS-UE2 (MCData client) are registered and authorized to use the MCData system.
- The <max-payload-size-sds-cplane-bytes> element shall not be present in the MCData Service Configuration document so that according to ETSI TS 124 484 [3] (3GPP TS 24.484) there is no size limit imposed for the use of C-plane procedures for the SDS message.

5.2.2.3.2 Test procedure sequence

Table 5.2.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS-UE1 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a standalone one-to-one SDS message to SS-UE2 (MCData Client), with disposition request "DELIVERY".	<--	SIP MESSAGE	-	-
2	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	1	P
3	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
4	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE2 (MCData Client)?	-->	SIP MESSAGE	1	P
5	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
6	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE1 (MCData Client)?	-->	SIP 202 (Accepted)	1	P
7	The SS-UE2 (MCData Client) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
8	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to SS (MCData Server)?	-->	SIP 200 (OK)	1	P
9	The SS-UE2 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a disposition notification of "DELIVERED" to SS-UE1 (MCData Client).	<--	SIP MESSAGE	-	-
10	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	2	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
11	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
12	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	2	P
13	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
14	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCData Client)?	-->	SIP 202 (Accepted)	2	P
15	The SS-UE1 (MCData Server) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
16	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to the SS (MCData Server)?	-->	SIP 200 (OK)	2	P
17	The SS-UE1 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a standalone one-to-one SDS message to SS-UE2 (MCData Client), with disposition request "READ".	<--	SIP MESSAGE	-	-
18	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	3	P
19	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
20	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE2 (MCData Client)?	-->	SIP MESSAGE	3	P
21	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
22	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE1 (MCData Client)?	-->	SIP 202 (Accepted)	3	P
23	The SS-UE2 (MCData Client) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
24	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to SS (MCData Server)?	-->	SIP 200 (OK)	3	P
25	The SS-UE2 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a disposition notification of "READ" to SS-UE1 (MCData Client).	<--	SIP MESSAGE	-	-
26	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	4	P
27	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
28	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	4	P
29	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
30	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCData Client)?	-->	SIP 202 (Accepted)	4	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
31	The SS-UE1 (MCDData Server) sends a SIP 200 (OK) response to the IUT (MCDData Server).	<--	SIP 200 (OK)	-	-
32	Check: Does the IUT (MCDData Server) forward the SIP 200 (OK) response to the SS (MCDData Server)?	-->	SIP 200 (OK)	4	P
33	The SS-UE1 (MCDData Client) sends a SIP MESSAGE request to the IUT (MCDData Server), to send a standalone one-to-one SDS message to SS-UE2 (MCDData Client), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
34	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to the SS (MCDData Server) providing the controlling function?	-->	SIP MESSAGE	5	P
35	The SS (MCDData Server) forwards the SIP MESSAGE to the IUT (MCDData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
36	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to SS-UE2 (MCDData Client)?	-->	SIP MESSAGE	5	P
37	The SS (MCDData Server) sends a SIP 202 (Accepted) response to the IUT (MCDData Server).	<--	SIP 202 (Accepted)	-	-
38	Check: Does the IUT (MCDData Server) forward the SIP 202 (Accepted) response to SS-UE1 (MCDData Client)?	-->	SIP 202 (Accepted)	5	P
39	The SS-UE2 (MCDData Client) sends a SIP 200 (OK) response to the IUT (MCDData Server).	<--	SIP 200 (OK)	-	-
40	Check: Does the IUT (MCDData Server) forward the SIP 200 (OK) response to SS (MCDData Server)?	-->	SIP 200 (OK)	5	P
41	The SS-UE2 (MCDData Client) sends a SIP MESSAGE request to the IUT (MCDData Server), to send a disposition notification of "DELIVERED AND READ" to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
42	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to the SS (MCDData Server) providing the controlling function?	-->	SIP MESSAGE	6	P
43	The SS (MCDData Server) forwards the SIP MESSAGE to the IUT (MCDData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
44	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	6	P
45	The SS (MCDData Server) sends a SIP 202 (Accepted) response to the IUT (MCDData Server).	<--	SIP 202 (Accepted)	-	-
46	Check: Does the IUT (MCDData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCDData Client)?	-->	SIP 202 (Accepted)	6	P
47	The SS-UE1 (MCDData Server) sends a SIP 200 (OK) response to the IUT (MCDData Server).	<--	SIP 200 (OK)	-	-
48	Check: Does the IUT (MCDData Server) forward the SIP 200 (OK) response to the SS (MCDData Server)?	-->	SIP 200 (OK)	6	P
49	The SS-UE1 (MCDData Client) sends a SIP MESSAGE request to the IUT (MCDData Server), to send a standalone one-to-one SDS message to SS-UE2 (MCDData Client), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
50	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	5	P
51	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
52	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE2 (MCData Client)?	-->	SIP MESSAGE	5	P
53	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
54	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE1 (MCData Client)?	-->	SIP 202 (Accepted)	5	P
55	The SS-UE2 (MCData Client) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
56	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to SS (MCData Server)?	-->	SIP 200 (OK)	5	P
57	The SS-UE2 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a disposition notification of "DELIVERED" to SS-UE1 (MCData Client).	<--	SIP MESSAGE	-	-
58	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	2	P
59	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
60	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	2	P
61	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-
62	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCData Client)?	-->	SIP 202 (Accepted)	2	P
63	The SS-UE1 (MCData Server) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
64	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to the SS (MCData Server)?	-->	SIP 200 (OK)	2	P
65	The SS-UE2 (MCData Client) sends a SIP MESSAGE request to the IUT (MCData Server), to send a disposition notification of "READ" to SS-UE1 (MCData Client).	<--	SIP MESSAGE	-	-
66	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to the SS (MCData Server) providing the controlling function?	-->	SIP MESSAGE	4	P
67	The SS (MCData Server) forwards the SIP MESSAGE to the IUT (MCData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
68	Check: Does the IUT (MCData Server) forward the SIP MESSAGE to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	4	P
69	The SS (MCData Server) sends a SIP 202 (Accepted) response to the IUT (MCData Server).	<--	SIP 202 (Accepted)	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
70	Check: Does the IUT (MCData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCData Client)?	-->	SIP 202 (Accepted)	4	P
71	The SS-UE1 (MCData Server) sends a SIP 200 (OK) response to the IUT (MCData Server).	<--	SIP 200 (OK)	-	-
72	Check: Does the IUT (MCData Server) forward the SIP 200 (OK) response to the SS (MCData Server)?	-->	SIP 200 (OK)	4	P

5.2.2.3.3 Specific message contents

**Table 5.2.2.3.3-1: SIP MESSAGE from the SS-UE1 (MCData Client) to the IUT (MCData Server)
(Step 1, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-1

**Table 5.2.2.3.3-2: SIP MESSAGE from the IUT (MCData Server) to the SS (MCData Server)
(Step 2, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-1

**Table 5.2.2.3.3-3: SIP MESSAGE from the SS (MCData Server) to the IUT (MCData Server)
(Step 3, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-4

**Table 5.2.2.3.3-4: SIP MESSAGE from the IUT (MCData Server) to the SS-UE2 (MCData Client)
(Step 4, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-2

**Table 5.2.2.3.3-5: SIP MESSAGE from the SS-UE2 (MCData Client) to the IUT (MCData Server)
(Steps 9 and 57, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-4

**Table 5.2.2.3.3-6: SIP MESSAGE from the IUT (MCData Server) to the SS (MCData Server)
(Steps 10 and 58, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-5

**Table 5.2.2.3.3-7: SIP MESSAGE from the SS (MCData Server) to the IUT (MCData Server)
(Steps 11 and 59, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-7

**Table 5.2.2.3.3-8: SIP MESSAGE from the IUT (MCData Server) to the SS-UE1 (MCData Client)
(Steps 12 and 60, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-6

**Table 5.2.2.3.3-9: SIP MESSAGE from the SS-UE1 (MCDData Client) to the IUT (MCDData Server)
(Step 17, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-7

**Table 5.2.2.3.3-10: SIP MESSAGE from the IUT (MCDData Server) to the SS (MCDData Server)
(MCDData Server) (Step 18, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-8

**Table 5.2.2.3.3-11: SIP MESSAGE from the SS (MCDData Server) to the IUT (MCDData Server)
(Step 19, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-9

**Table 5.2.2.3.3-12: SIP MESSAGE from the IUT (MCDData Server) to the SS-UE2 (MCDData Client)
(Step 20, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-8

**Table 5.2.2.3.3-13: SIP MESSAGE from the SS-UE2 (MCDData Client) to the IUT (MCDData Server)
(Steps 25 and 65, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-10

**Table 5.2.2.3.3-14: SIP MESSAGE from the IUT (MCDData Server) to the SS (MCDData Server)
(Steps 26 and 66, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-10

**Table 5.2.2.3.3-15: SIP MESSAGE from the SS (MCDData Server) to the IUT (MCDData Server)
(Steps 27 and 67, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-11

**Table 5.2.2.3.3-16: SIP MESSAGE from the IUT (MCDData Server) to the SS-UE1 (MCDData Client)
(Steps 28 and 68, Table 5.2.2.3.2-1)**

Derivation Path ETSI TS 104 149-1 [15], Table 6.1.1.3.3-12

**Table 5.2.2.3.3-17: SIP MESSAGE from the SS-UE1 (MCDData Client) to the IUT (MCDData Server)
(Steps 33 and 49, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-13

**Table 5.2.2.3.3-18: SIP MESSAGE from the IUT (MCDData Server) to the SS (MCDData Server)
(Steps 34 and 50, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-12

**Table 5.2.2.3.3-19: SIP MESSAGE from the SS (MCDATA Server) to the IUT (MCDATA Server)
(Steps 35 and 51, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-13

**Table 5.2.2.3.3-20: SIP MESSAGE from the IUT (MCDATA Server) to the SS-UE2 (MCDATA Client)
(Steps 36 and 52, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-14

**Table 5.2.2.3.3-21: SIP MESSAGE from the SS-UE2 (MCDATA Client) to the IUT (MCDATA Server)
(Step 41, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-19

**Table 5.2.2.3.3-22: SIP MESSAGE from the IUT (MCDATA Server) to the SS (MCDATA Server)
(Step 42, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-14

**Table 5.2.2.3.3-23: SIP MESSAGE from the SS (MCDATA Server) to the IUT (MCDATA Server)
(Step 43, Table 5.2.2.3.2-1)**

Derivation Path: Table 5.2.1.3.3-15

**Table 5.2.2.3.3-24: SIP MESSAGE from the IUT (MCDATA Server) to the SS-UE1 (MCDATA Client)
(Step 44, Table 5.2.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.1.3.3-21

5.2.3 MCDATA Server - MCDATA Server / Short Data Service (SDS) / Standalone SDS Using Media Plane / Group Standalone SDS / Controlling server

5.2.3.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function initiates
establishment of a group standalone SDS between SS-UE1 (MCDATA Client) and SS-UE2 (MCDATA
Client)forwarding a SIP INVITE message}
  then { IUT (MCDATA Server) sends a SIP INVITE to SS (MCDATA Server) providing the terminating
participating MCDATA function to establish the communication and IUT (MCDATA Server) sends a SIP 100
(Trying) to SS (MCDATA Server) providing the originating participating MCDATA function and IUT
(MCDATA Server) sends a SIP 200 (OK) to SS (MCDATA Server) originating function after receiving a
SIP 200 (OK) from SS (MCDATA Server) providing the terminating participating MCDATA function and IUT
(MCDATA Server) sends a SIP ACK to SS (MCDATA Server) providing the terminating participating MCDATA
function after receiving a SIP 200 (OK) from SS (MCDATA Server) providing the originating
participating MCDATA function }
}
```

(2)

```

with { IUT (MCDATA Server) having established a group standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function sends an MSRP
SEND message requesting to bind the TCP connection to the MSRP session}
    then { IUT (MCDATA Server) replies with an MSRP 200 (OK) }
}

```

(3)

```

with { IUT (MCDATA Server) having bound TCP connection to MSRP session in originating side and SS
(MCDATA Server) providing the terminating participating MCDATA function acting as passive endpoint }
ensure that {
  when { IUT (MCDATA Server) connects to the TCP server at the SS (MCDATA Server) providing the
terminating participating MCDATA function to establish an MSRP connection }
    then { IUT (MCDATA Server) sends an empty MSRP SEND request to bind the TCP connection to the
MSRP session }
}

```

(4)

```

with { IUT (MCDATA Server) having bound TCP connection to MSRP session in originating side and SS
(MCDATA Server) terminating participating acting as active endpoint }
ensure that {
  when { SS (MCDATA Server) sends an MSRP SEND message to connect to the TCP server at the IUT
(MCDATA Server) to establish an MSRP connection }
    then { IUT (MCDATA Server) responds with a SIP 200 (OK) to SS (MCDATA Server) }
}

```

(5)

```

with { IUT (MCDATA Server) having established MSRP session for standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function sends an MSRP
SEND message to send a group SDS message from SS-UE1 (MCDATA Client), with disposition request
"DELIVERY" }
    then { IUT (MCDATA Server) replies with a MSRP 200 (OK) and IUT (MCDATA Server) forwards the
MSRP SEND message via SS (MCDATA Server) providing the terminating participating MCDATA function to
SS-UE2 (MCDATA Client) }
}

```

(6)

```

with { IUT (MCDATA Server) having sent the group standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function sends a SIP BYE
message to end the group Standalone SDS }
    then { IUT (MCDATA Server) sends a SIP BYE message to the SS (MCDATA Server) providing the
terminating participating MCDATA function and sends a SIP 200 (OK) message to SS (MCDATA Server)
providing the originating participating MCDATA function after the reception of a SIP 200 (OK)
message from SS (MCDATA Server) providing the terminating participating MCDATA function and IUT
(MCDATA Server) waits to close MSRP TCP connections }
}

```

(7)

```

with { IUT (MCDATA Server) having released a group standalone SDS }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function sends a
disposition notification "DELIVERED" by sending a SIP MESSAGE message }
    then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

5.2.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 9.2.3.4.3, 9.2.3.4.4, 9.2.3.4.1 and 9.2.3.4.2; and ETSI TS 124 582 [16] (3GPP TS 24.582), clauses 6.3.1.1, 6.3.1.2.1, 6.3.1.2.2 and 6.3.1.3. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.3]

"This subclause describes the procedures for inviting an MCDData user to an MCDData session. The procedure is initiated by the controlling MCDData function as the result of an action in subclause 9.2.3.4.4.

The controlling MCDData function:

- 1) shall generate a SIP INVITE request according to 3GPP TS 24.229 [5];
- 2) shall include the Supported header field set to "timer";
- 3) should include the Session-Expires header field according to rules and procedures of IETF RFC 4028 [38]. The refresher parameter shall be omitted;
- 4) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];
- 5) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8];
- 6) shall include a Referred-By header field with the public user identity of the inviting MCDData client;
- 7) shall include in the Contact header field an MCDData session identity for the MCDData session with the g.3gpp.mcdata.sds media feature tag, the isfocus media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" according to IETF RFC 3840 [16];
- 8) shall include in the application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP INVITE request:
 - a) the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and
 - b) the <mcdata-calling-group-id> element set to the group identity;
- 9) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

NOTE 1: How the controlling MCDData function finds the address of the terminating participating MCDData function is out of the scope of the current release.

- 10) shall set the P-Asserted-Identity header field to the public service identity of the controlling MCDData function;
- 11) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service-Id header field according to IETF RFC 6050 [7] in the SIP INVITE request;
- 12) shall include in the SIP INVITE request an SDP offer based on the SDP offer in the received SIP INVITE request from the originating client according to the procedures specified in subclause 9.2.3.4.1; and
- 13) shall send the SIP INVITE request towards the terminating client in accordance with 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response for the SIP INVITE request the controlling MCDData function:

- 1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.3.1.

NOTE 2: The procedures executed by the controlling MCDData function prior to sending a response to the inviting MCDData client are specified in subclause 9.2.3.4.4."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.4]

"In the procedures in this subclause:

- 1) MCDData ID in an incoming SIP INVITE request refers to the MCDData ID of the originating user from the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP INVITE request;
- 2) group identity in an incoming SIP INVITE request refers to the group identity from the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP INVITE request; and

- 3) MCDData ID in an outgoing SIP INVITE request refers to the MCDData ID of the called user in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the outgoing SIP INVITE request;

Upon receipt of a "SIP INVITE request for controlling MCDData function for standalone SDS over media plane", the controlling MCDData function:

...

- 4) shall cache SIP feature tags, if received in the Contact header field and if the specific feature tags are supported;
- 5) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38];
- ...
- 7) if the <request-type> element in the application/vnd.3gpp.mcddata-info+xml MIME body of the SIP INVITE request is set to a value of "group-sds":
 - a) shall retrieve the necessary group document(s) from the group management server for the group identity contained in the SIP INVITE request and carry out initial processing as specified in subclause 6.3.3, and shall continue with the remaining steps if the procedures in subclause 6.3.3 were successful;
 - ...
 - c) if the <entry> element of the <list> element of the <list-service> element in the group document does not contain an <mcddata-mcddata-id> element with a "uri" attribute matching the MCDData ID of the originating user contained in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body in the SIP INVITE request, shall send a SIP 403 (Forbidden) response ... and shall not continue with the rest of the steps;
 - d) if the <list-service> element contains a <mcddata-allow-short-data-service> element in the group document set to a value of "false", shall send a SIP 403 (Forbidden) response ... and shall not continue with the rest of the steps;
 - e) if the <supported-services> element is not present in the group document or is present and contains a <service> element containing an "enabler" attribute which is not set to the value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds", shall send a SIP 488 (Not Acceptable) response ... shall not continue with the rest of the steps;
 - f) if the MCDData server group SDS procedures in subclause 11.1 indicate that the user identified by the MCDData ID is not allowed to send group MCDData communications on this group identity as determined by step 2) of subclause 11.1, shall reject the SIP INVITE request with a SIP 403 (Forbidden) response, ..., and shall not continue with the rest of the steps in this subclause;
 - g) the originating user identified by the MCDData ID is not affiliated to the group identity contained in the SIP INVITE request, as specified in subclause 6.3.5, shall return a SIP 403 (Forbidden) response ..., and skip the rest of the steps below;
 - h) shall determine targeted group members for MCDData communications by following the procedures in subclause 6.3.4;
 - ...
 - j) shall invite each group member determined in step h) above, to the group session, as specified in subclause 9.2.3.4.3; and
 - k) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.3.1.

Upon receiving a SIP 200 (OK) response for a SIP INVITE request as specified in subclause 9.2.3.4.3 and if the MCDData ID in the SIP 200 (OK) response matches to the MCDData ID in the corresponding SIP INVITE request. the controlling MCDData function:

- 1) shall generate SIP 200 (OK) response to the SIP INVITE request according to 3GPP TS 24.229 [5];
- 2) shall include the option tag "timer" in a Require header field;

- 3) shall include the Session-Expires header field and start supervising the SIP session according to rules and procedures of IETF RFC 4028 [38], "UAS Behavior". The "refresher" parameter in the Session-Expires header field shall be set to "uac";
- 4) shall include a P-Asserted-Identity header field with the public service identity of the controlling MCDData function;
- 5) shall include a SIP URI for the MCDData session identity in the Contact header field identifying the MCDData session at the controlling MCDData function;
- 6) shall include the following in the Contact header field:
 - a) the g.3gpp.mcdata.sds media feature tag;
 - b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
 - c) the isfocus media feature tag;
- 7) shall include Warning header field(s) received in incoming responses to the SIP INVITE request;
- 8) shall include in the SIP 200 (OK) response an SDP answer to the SDP offer in the incoming SIP INVITE request as specified in the subclause 9.2.3.4.2;
- 9) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.3.1; and
- 10) shall send a SIP 200 (OK) response to the inviting MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.1]

"When composing an SDP offer according to 3GPP TS 24.229 [5], IETF RFC 4975 [17], IETF RFC 6135 [19] and IETF RFC 6714 [20] the controlling MCDData function:

- 1) shall include an "m=message" media-level section for the MCDData media stream received from the originating MCDData client consisting of:
 - a) the port number;
 - b) a protocol field value of "TCP/MSRP" or "TCP/TLS/MSRP" for TLS;
 - c) a format list field set to '*';
 - d) an "a=sendonly" attribute;
 - e) an "a=path" attribute containing its own MSRP URI;
 - f) set the content type as "a=accept-types:application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload"; and
 - g) set the a=setup attribute as "actpass".

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.2]

"When composing the SDP answer according to 3GPP TS 24.229 [5], the controlling MCDData function:

- 1) shall include an "m=message" media-level section for the accepted MCDData media stream consisting of:
 - a) the port number;
 - b) a protocol field value of "TCP/MSRP" or "TCP/TLS/MSRP" for TLS according to the received SDP offer;
 - c) a format list field set to '*';
 - d) an "a=recvonly" attribute;
 - e) an "a=path" attribute containing its own MSRP URI;

- f) set the content type as *a=accept-types: application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload*; and
- g) set the *a=setup* attribute set to "passive" according to IETF RFC 6135 [19]."

[ETSI TS 124 582 [16] (3GPP TS 24.582), clause 6.3.1.1]

"The controlling MCDData function plays a key role in anchoring the media between the originating MCDData client and the terminating MCDData client. Hence controlling MCDData function maintains a MSRP session with all the active MCDData clients.

The procedures in subclause 6.3.1.2 and subclause 6.3.1.3 are applicable for both, one-to-one and group standalone SDS using media plane."

[ETSI TS 124 582 [16] (3GPP TS 24.582), clause 6.3.1.2.1]

"To establish the MSRP connection with the originating MCDData client, the controlling MCDData function performs below procedures:

1. shall act as an MSRP client and establish TLS connection with the originating participating MCDData function, if exists, otherwise the originating MCDData client, according to the rules and procedures as described in IETF RFC 4975 [11];
2. shall act as an MSRP client to send MSRP SEND requests according to the rules and procedures described in IETF RFC 6135 [12];
3. shall act as an "passive" endpoint according to the rules and procedures described in IETF RFC 6135 [12];
4. shall establish the MSRP connection with originating MCDData client, according to the rules and procedures described in IETF RFC 6135 [12]; and
5. as a passive endpoint, shall wait for MSRP SEND request on established MSRP connection, to bind the MSRP connection to the MSRP session according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12]."

[ETSI TS 124 582 [16] (3GPP TS 24.582), clause 6.3.1.2.2]

"To establish the MSRP connection with the terminating MCDData client, the controlling MCDData function performs below procedures:

1. shall act as an MSRP client and establish TLS connection with the terminating participating MCDData function, if exists, otherwise the terminating MCDData client, according to the rules and procedures as described in IETF RFC 4975 [11];
2. shall act as an MSRP client to send MSRP SEND requests according to the rules and procedures described in IETF RFC 6135 [12];
3. shall act according to IETF RFC 6135 [12], as:
 - a. an "active" endpoint, if *a=setup* attribute in the received SDP answer is set to "passive"; and
 - b. an "passive" endpoint, if *a=setup* attribute in the received SDP answer is set to "active";
4. shall establish the MSRP connection with each terminating MCDData client identified in the 3GPP TS 24.282 [8], according to the rules and procedures described in IETF RFC 6135 [12]; and
5. if acting as an "active" endpoint, shall send an empty MSRP SEND request on each established MSRP connection, to bind the MSRP connection to the MSRP session according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12]."

[ETSI TS 124 582 [16] (3GPP TS 24.582), clause 6.3.1.3]

"Upon receiving a MSRP SEND request from the originating participating MCDData function, the controlling MCDData function:

...

2. *if in a standalone group SDS using media plane shall verify:*
 - a. *the SDS message size is less than or equal to <mcddata-max-data-in-single-request> element of the MCDData group document for the (see the MCDData group document in 3GPP TS 24.481 [4]); and*
 - b. *the SDS message size is less than or equal to <mcddata-on-network-max-data-size-for-SDS> element of the MCDData group document (see the MCDData group document in 3GPP TS 24.481 [4]);*
3. *if the verifications in either 1 or 2 a or 2 b above fails, shall send the MSRP response with the error code 403 to the MCDData client which sent the SDS message and shall not continue with the rest of the procedure;*
4. *shall generate and send a MSRP 200 (OK) response for the received MSRP SEND requests to the originating participating MCDData function, according to the rules and procedures of IETF RFC 4975 [11]; and*
5. *shall forward the received MSRP SEND requests to each terminating MCDData client with which a successful MSRP connection was established, according to the rules and procedures of IETF RFC 4975 [11]. Following clarifications apply to the generated MSRP SEND request:*
 - a. *shall modify the To-Path header according to the MSRP URI received in the answer SDP from the MCDData client in accordance with rules and procedures of IETF RFC 4975 [11]; and*
 - b. *shall modify the From-Path header to the controlling MCDData function's own MSRP URI, according to the rules and procedures of IETF RFC 4975 [11]."*

5.2.3.3 Test description

5.2.3.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
 - SS (MCDData Server) provides the participating MCDData functions.
- SS-UE1 (MCDData client)
 - Simulated behind the SS (MCDData Server).
- SS-UE2 (MCDData client)
 - Simulated behind the SS (MCDData Server).

IUT:

- IUT (MCDData Server)
 - IUT (MCDData Server) provides the controlling MCDData function.
- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to SS (MCDData Server).
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are registered and authorized to use the MCDData system.
- The <max-payload-size-sds-cplane-bytes> element of the MCDData Service Configuration document shall be set to 0 to force the MCDData client to send the data using the media plane.

- SS-UE1 (MCDData client) and SS-UE2 (MCDData client) are affiliated with Group A.
- The IUT (MCDData Server) is the controlling server of the group.

5.2.3.3.2 Test procedure sequence

Table 5.2.3.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP INVITE requesting the establishment of an MCDData communication between SS-UE1 (MCDData Client) and SS-UE2 (MCDData Client).	<--	SIP INVITE	-	-
2	Check: Does the IUT (MCDData Server) send a SIP INVITE to the SS (MCDData Server) providing the terminating participating MCDData function, requesting the establishment of an MCDData communication to SS-UE2 (MCDData Client)?	-->	SIP INVITE	1	P
-	EXCEPTION: Step 3 describes behaviour that depends on the IUT (MCDData Server) implementation; it identifies a step sequence that take place if the SS (MCDData Server) responds to a SIP INVITE with a SIP 100 (Trying).	-	-	-	-
3	Check: Does the IUT (MCDData Server) send a SIP 100 Trying to the SS (MCDData Server) providing the originating function?	-->	SIP 100 (Trying)	1	P
4	The SS (MCDData Server) providing the terminating participating MCDData function responds with a SIP 200 (OK).	<--	SIP 200 (OK)	-	-
5	Check: Does the IUT (MCDData Server) respond with a SIP 200 (OK) to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 200 (OK)	1	P
6	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP ACK to acknowledge the session establishment.	<--	SIP ACK	-	-
7	Check: Does the IUT (MCDData Server) send a SIP ACK to acknowledge the session establishment to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP ACK	1	P
8	The SS (MCDData Server) connects to the TCP server at the IUT (MCDData server) side to establish an MSRP connection. (Note 1)	-	-	-	-
9	The SS (MCDData Server) providing the originating participating MCDData function sends an empty MSRP SEND request to bind the TCP connection to the MSRP session.	<--	MSRP SEND	-	-
10	Check: Does the MCDData server (IUT) send an MSRP 200 (OK) response?	-->	MSRP 200 (OK)	2	P
-	EXCEPTION: Steps 11a1 - 11b3 describe behaviour that depends on which role of an endpoint the SS (MCDData Server) has chosen in its SDP answer sent at step 4. (Note 2)	-	-	-	-
11a1	IF the SS (MCDData Server) providing the terminating participating MCDData function acts as passive endpoint (note 3) THEN the IUT (MCDData Server) connects to the TCP server at the SS (MCDData Server) side to establish an MSRP connection.	-	-	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
11a2	Check: Does the IUT (MCData Server) send an empty MSRP SEND request to bind the TCP connection to the MSRP session?	-->	MSRP SEND	3	P
11a3	The SS (MCData Server) sends an MSRP 200 (OK) response.	<--	MSRP 200 (OK)	-	-
11b1	ELSE (note 4) the SS (MCData Server) connects to the TCP server at the IUT (MCData Server) side to establish an MSRP connection.	-	-	-	-
11b2	The SS (MCData Server) sends an empty MSRP SEND request to bind the TCP connection to the MSRP session.	<--	MSRP SEND	-	-
11b3	Check: Does the IUT (MCData Server) send an MSRP 200 (OK) response?	-->	MSRP 200 (OK)	4	P
12	The SS (MCData Server) providing the originating participating MCData function sends an MSRP SEND request, to send a group SDS message from SS-UE1 (MCData Client), with disposition request "DELIVERY". (NOTE 5)	<--	MSRP SEND	-	-
13	Check: Does the IUT (MCData Server) send an MSRP 200 (OK) response?	-->	MSRP 200 (OK)	5	P
14	Check: Does the IUT (MCData Server) forward the MSRP SEND request to the SS (MCData Server) providing the terminating participating MCData function, targeting SS-UE2 (MCData Client)?	-->	MSRP SEND	5	P
15	The SS (MCData Server) sends an MSRP 200 (OK) response.	<--	MSRP 200 (OK)	-	-
16	The SS (MCData Server) providing the originating participating MCData function sends a SIP BYE request to terminate the MCX session	<--	SIP BYE	-	-
17	Check: Does the IUT (MCData Server) send a SIP BYE request to terminate the MCData session with the SS (MCData Server) providing the terminating participating MCData function?	-->	SIP BYE	6	P
18	The SS (MCData Server) providing the terminating participating MCData function responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
19	Check: Does the IUT (MCData Server) respond a SIP 200 (OK) message to SS (MCData Server) providing the originating participating MCData function?	-->	SIP 200 (OK)	6	P
20	The SS (MCData Server) providing the originating participating MCData function closes the MSRP TCP connection.	-	-	-	-
21	Check: Does the MCData Server (IUT) wait for the SS (MCData Server) to close the MSRP TCP connection?	-	-	6	P
-	EXCEPTION: Steps 22a1 - 22b2 describe behaviour that depends on the endpoint role the SS (MCData Server) providing the terminating participating MCData function has chosen at call establishment.	-	-	-	-
22a1	IF the SS (MCData Server) is the active endpoint THEN	-	-	-	-
22a2	Check: Does the MCData Server (IUT) wait for the SS (MCData Server) to close the MSRP TCP connection?	-	-	6	P
23b1	ELSE the SS (MCData Server) closes the MSRP TCP connection.	-	-	-	-
23b2	Check: Does the IUT (MCData Server) close the MSRP TCP connection?	-	-	6	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
24	The SS (MCDATA Server) providing the originating participating MCDATA function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE2 (MCDATA Client) to SS-UE1 (MCDATA Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDATA Server implementation, steps 14 and 15 might be performed in parallel.	-	-	-	-
25	Check: Does the IUT (MCDATA Server) forward the SIP MESSAGE request to the SS (MCDATA Server) providing the terminating participating MCDATA function?	-->	SIP MESSAGE	7	P
26	Check: Does the IUT (MCDATA Server) send a SIP 202 (Accepted) response to the SS (MCDATA Server) providing the originating participating MCDATA function?	-->	SIP 202 (Accepted)	7	P
27	The SS (MCDATA Server) providing the terminating participating MCDATA function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
NOTE 1: According to ETSI TS 124 282 [5] (3GPP TS 24.282) clause 9.2.3.4.2 the controlling MCDATA function sets the a=setup attribute set to "passive" (see ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.1.2-3) ⇒ The SS (MCDATA Server) providing the originating participating function has the role of the active endpoint. NOTE 2: The role of the SS (MCDATA Server) providing the terminating participating MCDATA function will be chosen based on pc_MCDATA_MSRPRole. NOTE 3: The MCDATA Server indicates to act as passive endpoint by setting the a=setup attribute of the SDP answer at step 4 to "passive" (according to IETF RFC 4145 [12]). NOTE 4: The MCDATA Server indicates to act as active endpoint by setting the a=setup attribute of the SDP answer at step 4 to "active" (according to IETF RFC 4145 [12]). NOTE 5: It is assumed that in general there is no chunking between MCDATA Servers.					

5.2.3.3.3 Specific message contents

Table 5.2.3.3.3-1: MSRP SEND from the SS (MCDATA Server) (Steps 9 and 11b2, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.12.1.1-1, condition EMPTY_SEND_REQ				
Information Element	Value/remark	Comment	Reference	Condition
To-Path				
value	MSRP URI as provided by the IUT (MCDATA Server) in its SDP message sent to the SS (MCDATA Server) during call establishment.			
From-Path				
value	MSRP URI as provided by the SS (MCDATA Server) in its SDP message sent to the IUT (MCDATA Server) during call establishment.			

Table 5.2.3.3.3-2: MSRP SEND from the IUT (MCData Server) (Step 11a2, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.12.1.2-1, condition EMPTY_SEND_REQ				
Information Element	Value/remark	Comment	Reference	Condition
To-Path				
value	MSRP URI as provided by the SS (MCData Server) in its SDP message sent to the IUT (MCData Server) during call establishment.			
From-Path				
value	MSRP URI as provided by the IUT (MCData Server) in its SDP message sent to the SS (MCData Server) during call establishment.			

Table 5.2.3.3.3-3: MSRP SEND from the SS (MCData Server) (Step 12, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.2.3.3-10				
Information Element	Value/remark	Comment	Reference	Condition
To-Path				
value	MSRP URI as provided by the IUT (MCData Server) in its SDP message sent to the SS (MCData Server) during call establishment.			
From-Path				
value	MSRP URI as provided by the SS (MCData Server) in its SDP message sent to the IUT (MCData Server) during call establishment.			

Table 5.2.3.3.3-4: MSRP SEND from the IUT (MCData Server) (Step 13, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.2.3.3-11				
Information Element	Value/remark	Comment	Reference	Condition
To-Path				
value	MSRP URI as provided by the SS (MCData Server) in its SDP message sent to the IUT (MCData Server) during call establishment.			
From-Path				
value	MSRP URI as provided by the IUT (MCData Server) in its SDP message sent to the SS (MCData Server) during call establishment.			

Table 5.2.3.3.3-5: SIP BYE from the SS (MCData Server) (Step 16, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.2.1-1
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Table 5.2.3.3.3-6: SIP BYE from the IUT (MCData Server) (Step 17, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.2.2-1
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Table 5.2.3.3.3-7: SIP MESSAGE from the SS (MCDData Server) (Step 24, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.1.2.3.3-12				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.3.3.3-8			

Table 5.2.3.3.3-8: MCDData-Info (Table 5.2.3.3.3-7)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-10				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_B			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.2.3.3.3-9: SIP MESSAGE from the IUT (MCDData Server) (Step 25, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-11				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

Table 5.2.3.3.3-10: SIP INVITE from the SS (MCData Server) (Step 1, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicSe rvicId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS (MCData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicSe rvicId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicSe rvicId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicSe rvicId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicSe rvicId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.3.3	
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp- service.ims.icsi.mcdata.sds"			
Require	Not present			
Proxy-Require	Not present			
Session-Expires				
generic-param	"1800"	The recommended initial value is 1800 in RFC 4028 [17].		
Max-Forwards				
value	"70"	The recommended initial value is 70 in IETF RFC 3261 [7].		
Message-body				
MIME body part		SDP message		

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
MIME-part-body	SDP Message as described in Table 5.2.3.3.3-12.			
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.2.3.3.3-11.			

Table 5.2.3.3.3-11: MCDData-Info (Table 5.2.3.3.3-10)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-2				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.2.3.3.3-12: SDP for SIP INVITE (Table 5.2.3.3.3-10)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-1A				
Information Element	Value/remark	Comment	Reference	Condition
Origin		o= line		
username	"_"	"_" indicating the concept of user IDs not being supported		
sess-id	"11111111"	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	"11111111"			
Session Name	" "	s= line		
Connection Data	not present	c= line		
Media description[1]		Media description for data		
media description		m= line media = message		
port	port number assigned by the SS (MCData Server)	The transport port to which the media stream is sent		
Connection Data		c= line		
connection-address	IP address of the SS (MCData Server)			
media attribute		a= line attribute = path		
path	MSRP URI according to RFC 4975 [18] clause 6 and 9			
scheme	"msrp"			
authority				
userinfo	not present			
host	IP address of the SS (MCData Server)			
port	same value as in the media line			
session id	assigned by the SS (MCData Server)			
transport	"tcp"			
URI-parameter	not present			

Table 5.2.3.3.3-13: SIP INVITE from the IUT (MCData Server) (Step 2, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.4	
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Require	Not present			
Proxy-Require	Not present			
Record-Route	Not present			
Max-Forwards				
value	any allowed value			
Session-Expires				
generic-param	any allowed value			
Message-body				
MIME body part		SDP message		
MIME-part-body	SDP Message as described in Table 5.2.3.3.3-14.			
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.2.3.3.3-15.			

Table 5.2.3.3.3-14: SDP for SIP INVITE (Table 5.2.3.3.3-13)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-1A				
Information Element	Value/remark	Comment	Reference	Condition
Origin		o= line		
username	any allowed value	"-" indicating the concept of user IDs not being supported		
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			
Session Name	any allowed value	s= line		
Connection Data	not required if included in all media	c= line		
nettype	"IN"			
Addrtype	"IP4" or "IP6" depending on IP address"			
connection-address	IP address of the IUT (MCData Server)			
Media description[1]		Media description for data		
media description		m= line media = message		
port	any allowed value	The transport port to which the media stream is sent		
Connection Data	present if session description does not contain a c=line; optional otherwise	c= line		
connection-address	IP address of the IUT (MCData Server)			
media attribute		a= line attribute = path		
path	MSRP URI according to RFC 4975 [18] clause 6 and 9			
scheme	"msrp"			
authority				
userinfo	any value if present			
host	any allowed value			
port	same value as in the media line if present			
session id	any allowed value if present			
transport	"tcp"			
URI-parameter	not present			

Table 5.2.3.3.3-15: MCDATA-Info (Table 5.2.3.3.3-13)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-2				
Information Element	Value/remark	Comment	Reference	Condition
mcddata-info				
mcddata-Params				
mcddata-request-uri	Encrypted (note) <mcddata-request-uri> with mcddataURI set to px_MCDData_ID_User_B			
mcddata-calling-user-id	Encrypted (note) <mcddata-calling-user-id> with mcddataURI set to px_MCDData_ID_User_A			
mcddata-client-id	Encrypted (note) <mcddata-client-id> with mcddataString set to px_MCX_Client_A_ID			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.2-3A.				

Table 5.2.3.3.3-16: SIP 200 (OK) from the SS (MCDATA Server) (Step 4, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Contact			ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.3.4	
user-info and host	tsc_MCDData_SessionId			
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDATA Server which is simulated by the SS (MCDATA Server), providing terminating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.3.4	
Message-body				
MIME body part		SDP message		
MIME-part-body	SDP Message as described in Table 5.2.3.3.3-17			

Table 5.2.3.3.3-17: SDP for SIP 200 (OK) (Table 5.2.3.3.3-16)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.8.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Origin		o= line		
username	"-"	"-" indicating the concept of user IDs not being supported		
sess-id	"22222222"	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	"22222222"			
Session Name	" "	s= line		
Connection Data	not present	c= line		
Media description[1]		Media description for data		
media description		m= line media = message		
port	port number assigned by the SS (MCData Server)	The transport port to which the media stream is sent		
Connection Data		c= line		
connection-address	IP address of the SS (MCData Server)			
media attribute		a= line attribute = path		
path	MSRP URI according to RFC 4975 [18] clause 6 and 9			
scheme	"msrp"			
authority				
userinfo	not present			
host	IP address of the SS (MCData Server)			
port	same value as in the media line			
session id	assigned by the SS (MCData Server)			
transport	"tcp"			
URI-parameter	not present			

Table 5.2.3.3.3-18: SIP 200 (OK) from the IUT (MCData Server) (Step 5, Table 5.2.3.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-3, condition MCDATA_SDS				
Information Element	Value/remark	Comment	Reference	Condition
Contact			ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.4	
user-info and host	tsc_MCData_SessionId			
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the IUT (MCData Server) providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.3.4.4	
Message-body				
MIME body part		SDP message		
MIME-part-body	SDP Message as described in Table 5.2.3.3.3-19.			

Table 5.2.3.3.3-19: SDP for SIP 200 (OK) (Table 5.2.3.3.3-18)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.7.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Origin		o= line		
username	any allowed value	"-" indicating the concept of user IDs not being supported		
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			
Session Name	any allowed value	s= line		
Connection Data	not required if included in all media	c= line		
nettype	"IN"			
Addrtype	"IP4" or "IP6" depending on IP address"			
connection-address	IP address of the MCDData Server			
Media description[1]		Media description for data		
media description		m= line media = message		
port	any allowed value	The transport port to which the media stream is sent		
Connection Data	present if session description does not contain a c=line; optional otherwise	c= line		
connection-address	IP address of the IUT (MCDData Server)			
media attribute		a= line attribute = path		
path	MSRP URI according to RFC 4975 [18] clause 6 and 9			
scheme	"msrp"			
authority				
userinfo	any value if present			
host	any allowed value			
port	same value as in the media line if present			
session id	any allowed value if present			
transport	"tcp"			
URI-parameter	not present			

5.3 File Distribution

5.3.1 MCDATA Server - MCDATA Server / File Distribution (FD) / FD Using HTTP / One-to-one Standalone FD / Non-Mandatory Download / FILE DOWNLOAD REQUEST ACCEPTED / FILE DOWNLOAD COMPLETED / FILE DOWNLOAD REQUEST REJECTED / FILE DOWNLOAD DEFERRED / Controlling server

5.3.1.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) requests discovery of the absolute URI by sending a SIP MESSAGE message }
  then { IUT (MCDATA Server) responds with a SIP 200 (OK) and sends a SIP MESSAGE message containing the URI }
}
```

(2)

```
with { SS (MCDATA Server) having discovered the absolute URI of the media storage function }
ensure that {
  when { SS (MCDATA Server) requests upload of a file by means of an HTTP POST request }
  then { IUT (MCDATA Server) responds with an HTTP 201 (Created) }
}
```

(3)

```
with { IUT (MCDATA Server) having uploaded the file to media storage function }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP MESSAGE message containing a one-to-one standalone FD request with "DOWNLOAD COMPLETED UPDATE" disposition request from SS-UE1 (MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the originating participating MCDATA function }
}
```

(4)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one standalone FD request }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP MESSAGE message containing the "FILE DOWNLOAD REQUEST REJECTED" disposition notification from SS-UE2 (MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the originating participating MCDATA function }
}
```

(5)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one standalone FD request }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP MESSAGE message containing the "FILE DOWNLOAD REQUEST DEFERRED" disposition notification from SS-UE2 (MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the originating participating MCDATA function }
}
```

(6)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one
standalone FD request }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the "FILE DOWNLOAD REQUEST ACCEPTED" disposition notification from SS-UE2
(MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

(7)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the one-to-one
standalone FD request and SS (MCDATA Server) having accepted the file download request}
ensure that {
  when { SS-UE2 (MCDATA Client) requests download of a file via SS (MCDATA Server) by means of an
HTTP GET request }
  then { IUT (MCDATA Server) replies with an HTTP 200 (OK) containing the requested file and
checks that the content of the downloaded file is the same as specified }
}

```

(8)

```

with { IUT (MCDATA Server) having forwarded the requested file }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the "FILE DOWNLOAD COMPLETED" disposition notification from SS-UE2
(MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

5.3.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 10.2.4.4.1, 11.2, 10.2.4.4.2, 10.2.4.3.1, 10.2.4.3.2, 10.2.1.2.3, 12.2.3, 15.2.6, 6.2.2.2 and 6.4. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.1]

"This subclause describes the procedures for sending a SIP MESSAGE from the controlling MCDATA function and is initiated by the controlling MCDATA function as a result of an action in subclause 10.2.4.4.2.

The controlling MCDATA function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 2) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.fd* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) *application/vnd.3gpp.mcdata-info+xml* MIME body; and
 - b) *application/vnd.3gpp.mcdata-signalling* MIME body;
- 5) if the *application/vnd.3gpp.mcdata-signalling* MIME body in the received SIP MESSAGE request contained a FD SIGNALLING PAYLOAD message without the Mandatory download IE included, then:
 - a) shall execute the procedures in subclause 11.2;

- b) if the procedures in subclause 11.2 indicate that the mandatory download indication needs to be included, shall include the Mandatory download IE set to a value of "MANDATORY DOWNLOAD" in the FD SIGNALLING PAYLOAD message of the outgoing SIP MESSAGE request;
- 6) in the application/vnd.3gpp.mcdata-info+xml MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCData ID of the terminating user; and
 - b) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request was set to a value of "group-fd", shall set the <mcdata-calling-group-id> element to the group identity;
- 7) shall set the Request-URI to the public service identity of the terminating participating MCData function associated to the MCData user to be invited;
- 8) shall copy the public user identity of the calling MCData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 9) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fid"; and
- 10) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 11.2]

"If the controlling MCData function receives a one-to-one file distribution using HTTP or a group standalone file distribution using HTTP without the mandatory download indication the controlling MCData function:

- 1) if the file distribution request contained metadata, shall retrieve the filesize contained in the fileselector of the Metadata IE in the FD request;
- 2) if the file distribution request did not contain metadata, shall determine the size of the file referenced by the file URL contained in FD request;
- 3) for one-to-one file distribution using HTTP, shall determine if the filesize is less than or equal to the value contained in the <max-data-size-auto-recv-bytes> element of the MCData service configuration document as specified in 3GPP TS 24.484 [12];
- ...
- 5) if condition 3) or 4) is true, shall determine that the mandatory download indication needs to be included in the file distribution request sent to the terminating MCData client;"

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.2]

"The procedures in this subclause are executed upon:

- receipt of a "SIP MESSAGE request for FD using HTTP for controlling MCData function", the controlling MCData function; or
- a decision to now process a previously received "SIP MESSAGE request for FD using HTTP for controlling MCData function" that had been queued for later transmission;
- ...

the controlling MCData function:

- ...
- 3) if the SIP MESSAGE does not contain:
 - a) an application/vnd.3gpp.mcdata-info+xml MIME body; and
 - b) an application/vnd.3gpp.mcdata-signalling MIME body;

shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, with warning text set to "199 expected MIME bodies not in the request" in a Warning header field as specified in subclause 4.9, and shall not continue with the rest of the steps in this subclause;

- 4) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body contained in the SIP MESSAGE;
- 5) if the application/vnd.3gpp.mcdata-signalling MIME body does not contain only one FD SIGNALLING PAYLOAD message or FD HTTP TERMINATION message, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, ...
- 6) if the FD SIGNALLING PAYLOAD message or FD HTTP TERMINATION message does not contain only one Payload IE, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, ...
- 7) if the Payload IE has Payload contents:
 - a) with a Payload content type set to a value other than "FILEURL" shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, ...
 - b) with Payload data containing a file URL identifying a file that does not exist on the media storage function, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, ...
- 8) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message with a FD disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the FD SIGNALLING PAYLOAD message;

NOTE 2: The controlling MCDData function uses the Conversation ID and Message ID for correlation with disposition notifications.

- 9) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message:
 - a) with a Metadata IE, shall derive a timer value for the file availability timer as the minimum of the file availability information in the metadata and the value contained in the <max-file-availability> element in the MCDData service configuration document as specified in 3GPP TS 24.484 [12]; and
 - b) without a Metadata IE, shall derive a timer value for the file availability timer as the value contained in the <default-file-availability> element in the MCDData service configuration document as specified in 3GPP TS 24.484 [12];
- 10) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is set to a value of "one-to-one-fd" and the SIP MESSAGE request:
 - a) does not contain an application/resource-lists MIME body or contains an application/resource-lists MIME body with more than one <entry> element, shall return a SIP 403 (Forbidden) response ...; and
 - b) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message contains an application/resource-lists MIME body with exactly one <entry> element, shall send a SIP MESSAGE request to the MCDData user identified in the <entry> element of the MIME body, as specified in subclause 10.2.4.4.1;

...

- 13) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message, shall start TDC2 (file availability timer) with the value derived in step 9 of this subclause;
- 14) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message, shall associate the running timer TDC2 (file availability timer) to the Conversation ID, Message ID, Application ID (if included), and Extended application ID (if included) contained in the FD SIGNALLING PAYLOAD message;

NOTE 3: Multiple file availability timers can be running for a file. Each file availability timer is uniquely associated to a Conversation ID and Message ID.

- 15) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for FD using HTTP for controlling MCDData function"; and

- 16) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5].

..."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.1]

"Upon receipt of a "SIP MESSAGE request for FD using HTTP for originating participating MCDData function", the participating MCDData function:

...

- 2) shall determine the MCDData ID of the originating user from the public user identity in the P-Asserted-Identity header field of the SIP MESSAGE request, and shall authorise the calling user;

NOTE: The MCDData ID of the calling user is bound to the public user identity at the time of service authorisation, as documented in subclause 7.3.

...

- 4) if <mcdData-controller-psi> element is present in the application/vnd.3gpp.mcdData-info+xml, shall use its value as public service identity of the controlling MCDData function. Otherwise, if the <request-type> element in the application/vnd.3gpp.mcdData-info+xml MIME body of the SIP MESSAGE request is:

...

- b) set to a value of "one-to-one-fd", shall determine the public service identity of the controlling MCDData function hosting the one-to-one FD using HTTP service for the calling user;
- 5) if unable to identify the controlling MCDData function, it shall reject the SIP MESSAGE request with a SIP 404 (Not Found) response ..., and shall not continue with any of the remaining steps;
- 6) shall determine whether the MCDData user identified by the MCDData ID is authorised for MCDData communications by following the procedures in subclause 11.1;
- 7) if <mcdData-controller-psi> is not present in the application/vnd.3gpp.mcdData-info+xml and if the procedures in subclause 11.1 indicate that the user identified by the MCDData ID:
- a) is not allowed to initiate MCDData communications as determined by step 1) of subclause 11.1, shall reject the "SIP MESSAGE request for FD using HTTP for originating participating MCDData function" with a SIP 403 (Forbidden) response ..., and shall not continue with the rest of the steps in this subclause;
- b) is not allowed to initiate one-to-one MCDData communications due to exceeding the maximum amount of data that can be sent in a single request as determined by step 7) of subclause 11.1, shall reject the "SIP MESSAGE request for FD using HTTP for originating participating MCDData function" with a SIP 403 (Forbidden) response ..., and shall not continue with the rest of the steps in this subclause; and
- c) is not allowed to initiate one-to-one MCDData communications to the targeted user as determined by step 1a) of subclause 11.1, shall reject the "SIP MESSAGE request for FD using HTTP for originating participating MCDData function" with a SIP 403 (Forbidden) response ... and shall not continue with the rest of the steps;
- 8) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 9) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;
- 10) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10A) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdData-info+xml MIME body that contains a <functional-alias-URI> element, shall check if the status of the functional alias is activated for the MCDData ID. If the functional alias status is activated, then the participating MCDData function shall set the <functional-alias-URI> element of the application/vnd.3gpp.mcdData-info+xml MIME body in the outgoing SIP INVITE request to the received value, otherwise shall not include a <functional-alias-URI> element;

- 11) shall include the MCDData ID of the originating user in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the outgoing SIP MESSAGE request;
- 12) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.fd" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 13) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 14) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 14):

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 14):

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request in step 14) the participating MCDData function:

- 1) shall generate a SIP response according to 3GPP TS 24.229 [5];
- 2) shall include Warning header field(s) that were received in the incoming SIP response; and
- 3) shall forward the SIP response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.2]

"Upon receipt of a:

- "SIP MESSAGE request for FD using HTTP for terminating participating MCDData function"; or
- "SIP MESSAGE network notification for FD using HTTP for terminating participating MCDData function";

the participating MCDData function:

...

- 2) shall use the MCDData ID present in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and public user identity of the terminating MCDData user;

...

- 4) if the SIP MESSAGE is a "SIP MESSAGE request for FD using HTTP for terminating participating MCDData function", and if the application/vnd.3gpp.mcddata-signalling MIME body contains an FD SIGNALLING PAYLOAD message with a FD disposition request type IE, shall store the value of the Conversation ID IE, the value of the Message ID IE and the payload IE in the FD SIGNALLING PAYLOAD message;
- 5) if the SIP MESSAGE is a "SIP MESSAGE network notification for FD using HTTP for terminating participating MCDData function", and if FD NETWORK NOTIFICATION message within the application/vnd.3gpp.mcddata-signalling MIME body contains an FD notification type IE with value set as "FILE EXPIRED UNAVAILABLE TO DOWNLOAD" as specified in subclause 15.2.6, the file identified using Conversation ID IE shall be removed from the stored file list;
- 5) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;

- 5A) if the `<IncomingOne-to-OneCommunicationList>` element exists in the MCDData user profile document with one or more `<One-to-One-CommunicationListEntry>` elements (see the MCDData user profile document in 3GPP TS 24.484 [12]) and:
- i) if the `<mcddata-calling-user-id>` element of the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SIP message does not match with the `<entry>` element of any of the `<One-to-One-CommunicationListEntry>` elements in the `<IncomingOne-to-OneCommunicationList>` element of the MCDData user profile document (see the MCDData user profile document in 3GPP TS 24.484 [12]); and
 - ii) if configuration is not set in the MCDData user profile document that allows the MCDData user to receive one-to-one MCDData communication from any user (see `<allow-one-to-one-communication-from-any-user>` element in MCDData user profile document in 3GPP TS 24.484 [12]);

then:

- i) shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) ... and shall not continue with the rest of the steps;
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.fd" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request; and
- 7) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the controlling MCDData function according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP response according to 3GPP TS 24.229 [5];
- 2) shall include Warning header field(s) that were received in the incoming SIP response; and
- 3) shall forward the SIP response to the controlling MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.2.3]

"The MCDData client:

- 1) if the FD SIGNALLING PAYLOAD message does not contain an Application ID IE and does not contain an Extended application ID IE:
 - a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is for user consumption;
 - b) shall notify the user about the incoming FD request; and
 - c) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the user;
- 2) if the FD SIGNALLING PAYLOAD message contains an Application ID IE:
 - a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is not for user consumption;
 - b) if the Application ID value is unknown, shall discard the FD message and exit this subclause;
 - c) if the Application ID value is known, shall notify the application of the incoming FD request; and

NOTE 1: If FD request is addressed to a non-MCDData application that is not running, the MCDData client starts the local non-MCDData application.

- d) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the application;

2A) if the FD SIGNALLING PAYLOAD message contains an Extended application ID IE:

- a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is not for user consumption;
- b) if the Extended application ID value is unknown, shall discard the FD message and exit this clause;
- c) if the Extended application ID value is known, shall notify the application of the incoming FD request; and

NOTE 2: If the FD request is addressed to a non-MCData application that is not running, the MCData client starts the local non-MCData application.

- d) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the application;

- 3) shall start a timer TDU2 (FD non-mandatory download timer) with the timer value as specified in subclause F.2.3;
- 4) shall wait for the user or application to request to download the file indicated by file URL in the Payload data in the Payload IE in the FD SIGNALLING PAYLOAD message;
- 5) if the user or application accepts or rejects or decides to defer the FD request, shall stop timer TDU2 (FD non-mandatory download timer);
- 6) if the user deferred the FD request while the timer TDU2 (FD non-mandatory download timer) was running, shall generate an FD NOTIFICATION indicating deferral of the FD request as specified in subclause 12.2.1.1;

NOTE 3: Once the timer TDU2 (FD non-mandatory download timer) has expired the FD request can only be accepted or rejected with an appropriate action by the MCData client.

NOTE 4: Once the timer TDU2 (FD non-mandatory download timer) has expired, no action is taken by the MCData client if the FD request is deferred.

- 7) if the user or application rejects the FD request, shall generate an FD NOTIFICATION indicating rejection of the FD request as specified in subclause 12.2.1.1 and shall exit this subclause; and
- 8) if the user accepts the FD request:
 - a) shall generate an FD NOTIFICATION indicating acceptance of the FD request as specified in subclause 12.2.1.1;
 - b) if the FD SIGNALLING PAYLOAD message contains a new Conversation ID, shall instantiate a new conversation with the Message ID in the FD SIGNALLING PAYLOAD identifying the first message in the conversation thread;
 - c) if the FD SIGNALLING PAYLOAD message contains an existing Conversation ID and:
 - i) if the FD SIGNALLING PAYLOAD message does not contain an InReplyTo message ID, shall use the Message ID in the FD SIGNALLING PAYLOAD to identify a new message in the existing conversation thread; and
 - ii) if the FD SIGNALLING PAYLOAD message contains an InReplyTo message ID, shall associate the message to an existing message in the conversation thread as identified by the InReplyTo message ID in the FD SIGNALLING PAYLOAD, and use the Message ID in the FD SIGNALLING PAYLOAD to identify the new message;
 - d) may store the Conversation ID, Message ID, InReplyTo message ID and Date and time in local storage;
 - e) shall attempt to download the file as identified by the file URL in the Payload IE in the FD SIGNALLING PAYLOAD message, as specified in subclause 10.2.3.1; and

- f) if the received FD SIGNALLING PAYLOAD message contains an FD disposition request type IE requesting a file download completed update, then after the file download has been successfully downloaded, shall generate an FD NOTIFICATION by following the procedures in subclause 12.2.1.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3]

"Upon receipt of a:

...

- "SIP MESSAGE request for FD disposition notification for MCDData server";

the controlling MCDData function:

...

6) if:

- a) a "SIP MESSAGE request for FD disposition notification for MCDData server" has been received;
- b) the FD disposition notification type IE in the FD NOTIFICATION message is set to "FILE DOWNLOAD REQUEST REJECTED"; and
- c) the SIP MESSAGE does not contain an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-calling-group-id> element, or the SIP MESSAGE contains an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-calling-group-id> element and all other FD disposition notifications have been received from the invited group members and were all set to "FILE DOWNLOAD REQUEST REJECTED";

then:

- a) shall delete the file stored in the media storage function that is associated with the Conversation ID and Message ID that was included in the FD NOTIFICATION message if no other file availability timers are running for a file; and
 - b) shall stop the running timer TDC2 (file availability timer), which is associated to the Conversation ID, Message ID, Application ID (if associated), and Extended application ID (if associated) that is included in the FD NOTIFICATION message;
- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- ...
- 9) if sending an FD disposition notification:
- a) shall include an Accept-Contact header field containing the g.3gpp.mcdata.fd media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];
 - b) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" along with parameters "require" and "explicit" according to IETF RFC 3841 [8];
- 10) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

NOTE 1: How the controlling MCDData function finds the address of the terminating MCDData participating function is out of the scope of the current release.

...

- 12) if sending an FD disposition notification, shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd";
- 13) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;

- 14) shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcddata-request-uri> element in the application/vnd.3gpp.mcddata-info+xml MIME body of the outgoing SIP MESSAGE request;

...

- 17) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5];
- 18) shall generate a SIP 202 (Accepted) response in response to the
- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
 - "SIP MESSAGE request for FD disposition notification for MCDData server"; and
- 19) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 15.2.6]

"The purpose of the FD disposition notification type information element is to identify the type of FD disposition notification sent from receiver to the sender.

The value part of the FD disposition notification type information element is coded as shown in Table 15.2.6-1.

The FD disposition notification type information element is a type 3 information element with a length of 1 octet.

Table 15.2.6.1: FD disposition notification type

Bits								
8	7	6	5	4	3	2	1	
0	0	0	0	0	0	0	1	FILE DOWNLOAD REQUEST ACCEPTED
0	0	0	0	0	0	1	0	FILE DOWNLOAD REQUEST REJECTED
0	0	0	0	0	0	1	1	FILE DOWNLOAD COMPLETED
0	0	0	0	0	1	0	0	FILE DOWNLOAD DEFERRED
All other values are reserved.								

"

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.2.2]

"In order to generate an FD message, the MCDData client:

- 1) shall generate an FD SIGNALLING PAYLOAD message as specified in subclause 15.1.3; and
- 2) shall include in the SIP request, the FD SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcddata-signalling MIME body as specified in subclause E.1.

When generating an FD SIGNALLING PAYLOAD message as specified in subclause 15.1.3, the MCDData client:

- 1) shall set the Date and time IE to the current time as specified in subclause 15.2.8;
- 2) if the FD message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in subclause 15.2.9;
- 3) if the FD message continues an existing unfinished conversation, shall set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in subclause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in subclause 15.2.10;
- 5) if the FD message is in reply to a previously received MCDData message, shall include the InReplyTo message ID IE with the Message ID value in the previously received MCDData message;
- 6) if the FD message is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7 and shall not include an Extended application ID IE as specified in subclause 15.2.24;

- 7) if the FD message is intended for an application on the terminating MCDData client, shall include:
 - a) an Application ID IE with a Application ID value representing the intended application as specified in subclause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in subclause 15.2.24;

NOTE: The value and field chosen for coding the identity of the application are coordinated by the mission critical organisation.

- 8) may include an FD disposition request type IE set to "FILE DOWNLOAD COMPLETE UPDATE" as specified in subclause 15.2.4;
- 9) if requiring mandatory download at the recipient side, shall include a Mandatory download IE as specified in subclause 15.2.16 set to the value of "MANDATORY DOWNLOAD";
- 10) shall include a Payload IE with:
 - a) the Payload content type set to "FILEURL" as specified in subclause 15.2.13; and
 - b) the URL of the file in the Payload data as as specified in subclause 15.2.13; and
- 11) may include a Metadata IE with the required file description information and file availability information, as specified in subclause 15.2.17."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.4]

"The MCDData client and the MCDData server shall support several MIME bodies in SIP requests and SIP responses.

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

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

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

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

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

5.3.1.3 Test description

5.3.1.3.1 Pre-test conditions

System Simulator:

- SS (MCData Server)
 - SS (MCData Server) provides the participating MCData functions.
- SS-UE1 (MCData client)
 - Simulated behind the SS (MCData Server).
- SS-UE2 (MCData client)
 - Simulated behind the SS (MCData Server).
- Test File 1 for CO FD as specified in ETSI TS 104 149-1 [15], clause A.2.1 and test File 2 for CO FD as specified in ETSI TS 104 149-1 [15], clause A.2.2 are available at the SS-UE1 (MCData Client) for upload.

IUT:

- IUT (MCData Server)
 - IUT (MCData Server) provides the controlling MCData function.
- The IUT (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCData Server) is connected to SS (MCData Server).
- The SS-UE1 (MCData client) and the SS-UE2 (MCData client) are registered and authorized to use the MCData system.
- In the <on-network> element of the MCData Service Configuration document the <max-data-size-auto-recv-bytes> element of the <tx-and-rx-control> element shall be set to 0 to indicate non-mandatory download independent from the file size.

5.3.1.3.2 Test procedure sequence

Table 5.3.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the IUT (MCDData Server) correctly perform procedure 'Discovery of the absolute URI of the media storage function' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.10.3-1?	-	-	1	P
2	Check: Does the IUT (MCDData Server) correctly perform procedure 'FD File upload using HTTP' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.8.3-1, to send test file 1 (ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.1)?	-	-	2	P
3	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one FD SIGNALLING PAYLOAD message for non mandatory download, from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), containing the URL of the file and with disposition request "FILE DOWNLOAD COMPLETED UPDATE".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 4 and 5 might be performed in parallel.	-	-	-	-
4	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	3	P
5	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	3	P
6	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
7	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a FD disposition notification of "FILE DOWNLOAD REQUEST REJECTED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 8 and 9 might be performed in parallel.	-	-	-	-
8	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	4	P
9	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	4	P
10	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
11	Check: Does the IUT (MCDData Server) correctly perform procedure 'Discovery of the absolute URI of the media storage function' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.10.3-1?	-	-	1	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
12	Check: Does the IUT (MCDData Server) correctly perform procedure 'FD File upload using HTTP' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.8.3-1, to send test file 2 (ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.2)?	-	-	2	P
13	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one FD SIGNALLING PAYLOAD message for non mandatory download, from SS-UE1 (MCDData Client) to SS-UE2 (MCDData Client), containing the URL of the file and with disposition request "FILE DOWNLOAD COMPLETED UPDATE".	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 14 and 15 might be performed in parallel.	-	-	-	-
14	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	3	P
15	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	3	P
16	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
17	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a FD disposition notification of "FILE DOWNLOAD REQUEST DEFERRED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 18 and 19 might be performed in parallel.	-	-	-	-
18	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	5	P
19	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	5	P
20	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
21	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a FD disposition notification of "FILE DOWNLOAD REQUEST ACCEPTED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 22 and 23 might be performed in parallel.	-	-	-	-
22	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	6	P
23	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	6	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
24	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
25	Check: Does the IUT (MCDData Server) correctly perform procedure 'FD File download using HTTP' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.9.3-1, to download test file 2 (ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.2)?	-	-	7	P
26	Check: Is the content of the downloaded file the same as specified in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.2?	-	-	7	P
27	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a FD disposition notification of "FILE DOWNLOAD COMPLETED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 28 and 29 might be performed in parallel.	-	-	-	-
28	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	8	P
29	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	8	P
30	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-

5.3.1.3.3 Specific message contents

Table 5.3.1.3.3-1: SIP MESSAGE from the SS-UE1 (MCData Client), through the SS (MCData Server) (Steps 1 and 11, Table 5.3.1.3.2-1; Step 1a1, ETSI TS 104 149-1 [15], Table A.4.10.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table A.4.10.4-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.3.3	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.3.1.3.3-2			

Table 5.3.1.3.3-2: MCDData-Info (Table 5.3.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.3C.8.4-2				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
request-type	"msf-disc-req"			
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

**Table 5.3.1.3.3-3: SIP MESSAGE from the IUT (MCDData Server)
(Steps 1 and 11, Table 5.3.1.3.2-1; Step 1a3, ETSI TS 104 149-1 [15], Table A.4.10.3-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table A.4.10.4-3				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.3.4	

**Table 5.3.1.3.3-4: HTTP POST from the SS-UE1 (MCDData Client)
(Steps 2 and 12, Table 5.3.1.3.2-1; Step 1, ETSI TS 104 149-1 [15], Table A.4.8.3-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-1
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Table 5.3.1.3.3-5: HTTP 201 Created from the IUT (MCData Server) to the SS-UE1 (MCData Client)
(Step 2, Table 5.3.1.3.2-1; Step 3, ETSI TS 104 149-1 [15], Table A.4.8.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-2
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Table 5.3.1.3.3-6: HTTP 201 Created from the IUT (MCData Server) to the SS-UE1 (MCData Client)
(Step 12, Table 5.3.1.3.2-1; Step 3, ETSI TS 104 149-1 [15], Table A.4.8.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-9
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Table 5.3.1.3.3-7: HTTP GET from the SS-UE2 (MCData Client)
(Step 25, Table 5.3.1.3.2-1; Step 1, ETSI TS 104 149-1 [15], Table A.4.9.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-14

Table 5.3.1.3.3-8: HTTP 200 (OK) from the IUT (MCData Server) to the SS-UE2 (MCData Client)
(Step 25, Table 5.3.1.3.2-1; Step 2, ETSI TS 104 149-1 [15], Table A.4.9.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-15

Table 5.3.1.3.3-9: SIP MESSAGE from the SS (MCDData Server)
(Steps 3 and 13, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], 6.2.1.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.3.1.3.3-10			

Table 5.3.1.3.3-10: MCDData-Info (Table 5.3.1.3.3-9)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.2.1.3.3-13				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (NOTE 1) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
NOTE 1: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A				

**Table 5.3.1.3.3-11: SIP MESSAGE from the IUT (MCDData Server)
(Steps 4 and 14, Table 5.3.1.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.2	

Table 5.3.1.3.3-12: SIP MESSAGE from the SS (MCDData Server)
(Step 7, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServ iceld_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServ iceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServ iceld_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServ iceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServ iceld_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.3.1.3.3-13			

Table 5.3.1.3.3-13: MCDData-Info (Table 5.3.1.3.3-12)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_B			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

**Table 5.3.1.3.3-14: SIP MESSAGE from the IUT (MCDData Server)
(Step 8, Table 5.3.1.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

Table 5.3.1.3.3-15: SIP MESSAGE from the SS (MCData Server) (Step 17, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-10				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.3.1.3.3-13			

Table 5.3.1.3.3-16: SIP MESSAGE from the IUT (MCData Server) (Step 18, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-11				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

Table 5.3.1.3.3-17: SIP MESSAGE from the SS (MCData Server) (Step 21, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-12				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS (MCData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.3.1.3.3-13			

Table 5.3.1.3.3-18: SIP MESSAGE from the IUT (MCData Server) (Step 22, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-13				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

Table 5.3.1.3.3-19: SIP MESSAGE from the SS (MCData Server) (Step 27, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-16				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
Host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
Port	protected server port of the SS (MCData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.3.1.3.3-13			

Table 5.3.1.3.3-20: SIP MESSAGE from the IUT (MCData Server) (Step 28, Table 5.3.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.1.3.3-17				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCData Server	Address of the MCData Server providing the controlling MCData function serving the MCData user		
port	protected server port of the MCData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

5.3.2 MCData Server - MCData Server / File Distribution (FD) / FD Using HTTP / Group Standalone FD / Mandatory Download / Without Disposition Request / Controlling server

5.3.2.1 Test Purpose (TP)

(1)

```

with { IUT (MCData Server) connected to SS (MCData Server) }
ensure that {
  when { SS (MCData Server) requests discovery of the absolute URI by sending a SIP MESSAGE message }
  then { IUT (MCData Server) responds with a SIP 200 (OK) and sends a SIP MESSAGE message containing the URI }
}

```

(2)

```

with { SS (MCDATA Server) having discovered the absolute URI of the media storage function }
ensure that {
  when { SS (MCDATA Server) requests upload of a file by means of an HTTP POST request }
  then { IUT (MCDATA Server) responds with an HTTP 201 (Created) }
}

```

(3)

```

with { IUT (MCDATA Server) having uploaded "file 1" to media storage function }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a group standalone FD request from SS-UE1 (MCDATA Client) to IUT (MCDATA
Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

(4)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the group standalone
FD request and IUT (MCDATA Server) having uploaded "file 1" to media storage function }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a "FILE DOWNLOAD REQUEST ACCEPTED" disposition notification from SS-UE2
(MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}

```

(5)

```

with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the group standalone
FD request and SS (MCDATA Server) having accepted the file download request }
ensure that {
  when { SS-UE2 (MCDATA Client) requests download of a file via SS (MCDATA Server) by means of an
HTTP GET request }
  then { IUT (MCDATA Server) replies with an HTTP 200 (OK) containing the requested file and
checks that the content of the downloaded file is the same as specified }
}

```

5.3.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 10.2.4.4.1, 10.2.4.4.2, 10.2.4.3.1, 10.2.4.3.2, 10.2.1.2.2, 6.2.2.2, 15.2.6, 6.4 and 11.2. Unless otherwise stated, these are Rel-14 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.1]

"This subclause describes the procedures for sending a SIP MESSAGE from the controlling MCDATA function and is initiated by the controlling MCDATA function as a result of an action in subclause 10.2.4.4.2.

The controlling MCDATA function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 2) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.fd* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) application/vnd.3gpp.mcdata-info+xml MIME body; and
 - b) application/vnd.3gpp.mcdata-signalling MIME body;

- 5) if the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request contained a FD SIGNALLING PAYLOAD message without the Mandatory download IE included, then:
 - a) shall execute the procedures in subclause 11.2;
 - b) if the procedures in subclause 11.2 indicate that the mandatory download indication needs to be included, shall include the Mandatory download IE set to a value of "MANDATORY DOWNLOAD" in the FD SIGNALLING PAYLOAD message of the outgoing SIP MESSAGE request;
- 6) in the application/vnd.3gpp.mcdata-info+xml MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and
 - b) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request was set to a value of "group-fd", shall set the <mcdata-calling-group-id> element to the group identity;
- 7) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;
- 8) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 9) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"; and
- 10) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.2]

"The procedures in this subclause are executed upon:

- receipt of a "SIP MESSAGE request for FD using HTTP for controlling MCDData function", the controlling MCDData function; or
- a decision to now process a previously received "SIP MESSAGE request for FD using HTTP for controlling MCDData function" that had been queued for later transmission;

NOTE 1: The controlling MCDData function may postpone the continuation of an FD using HTTP procedure by queuing the received "SIP MESSAGE request for FD using HTTP for controlling MCDData function". The management of the queue is specified in Annex B of 3GPP TS 23.282 [2].

the controlling MCDData function:

- ...
- 4) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body contained in the SIP MESSAGE;
- ...
- 8) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message with a FD disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the FD SIGNALLING PAYLOAD message;
- NOTE 2: The controlling MCDData function uses the Conversation ID and Message ID for correlation with disposition notifications.
- 9) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message:
 - a) with a Metadata IE, shall derive a timer value for the file availability timer as the minimum of the file availability information in the metadata and the value contained in the <max-file-availability> element in the MCDData service configuration document as specified in 3GPP TS 24.484 [12]; and

- b) without a Metadata IE, shall derive a timer value for the file availability timer as the value contained in the <default-file-availability> element in the MCDATA service configuration document as specified in 3GPP TS 24.484 [12];
- ...
- 12) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message and if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is set to a value of "group-fd":
- a) shall retrieve the group document associated with the group identity in the SIP MESSAGE request by following the procedures in subclause 6.3.3, and shall continue with the remaining steps if the procedures in subclause 6.3.3 were successful;
- ...
- c) if the <entry> element of the <list> element of the <list-service> element in the group document does not contain an <mcdata-mcdata-id> element with a "uri" attribute matching the MCDATA ID of the originating user contained in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body in the SIP MESSAGE request, shall send a SIP 403 (Forbidden) response ... and shall not continue with the rest of the steps;
- d) if the <list-service> element contains a <mcdata-allow-file-distribution> element in the group document set to a value of "false", shall send a SIP 403 (Forbidden) response ... and shall not continue with the rest of the steps;
- e) if the <supported-services> element is not present in the group document or is present and contains a <service> element containing an "enabler" attribute which is not set to the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd", shall send a SIP 488 (Not Acceptable) ... and shall not continue with the rest of the steps;
- ...
- j) shall determine targeted group members for MCDATA communications by following the procedures in subclause 6.3.4;
- ...
- l) shall send SIP MESSAGE requests to the targeted group members identified in step j) above by following the procedure in subclause 10.2.4.4.1;
- 13) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message, shall start TDC2 (file availability timer) with the value derived in step 9 of this subclause;
- 14) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD SIGNALLING PAYLOAD message, shall associate the running timer TDC2 (file availability timer) to the Conversation ID, Message ID, Application ID (if included), and Extended application ID (if included) contained in the FD SIGNALLING PAYLOAD message;
- NOTE 3: Multiple file availability timers can be running for a file. Each file availability timer is uniquely associated to a Conversation ID and Message ID.
- 15) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for FD using HTTP for controlling MCDATA function"; and
- 16) shall send the SIP 202 (Accepted) response towards the originating participating MCDATA function according to 3GPP TS 24.229 [5].

- 17) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD HTTP TERMINATION message and Termination information type IE set to "TERMINATION REQUEST" then:
- a) shall identify the FILE transmission with Conversation ID and Message ID and "FILE URL". If any ongoing transmission exist then execute procedure described in subclause 12.4.2.1 with following clarifications:
 - i) shall set FD notification type IE as "FILE DELETED UNAVAILABLE TO DOWNLOAD" as specified in subclause 15.2.18;
 - b) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6]. In the generation of the SIP MESSAGE request, the controlling MCDData function:
 - i) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
 - ii) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd";
 - iii) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the participating MCDData function associated to the MCDData ID of the originating user mentioned in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request;
 - iv) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
 - v) shall include an application/vnd.3gpp.mcdata-info+xml MIME body in the SIP MESSAGE request, following the rules specified in subclause 6.4 for the handling of MIME bodies in a SIP message:
 - A) fill <mcdata-request-uri> element from <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml in received SIP MESSAGE;
 - vi) shall generate FD HTTP TERMINATION message as described in subclause 6.3.6.1;
 - vii) shall set the Termination information type IE set to "TERMINATION RESPONSE" as specified in subclause 15.2.22.
 - viii) if clause is successful shall set Release response type IE of FD HTTP TERMINATION MESSAGE to "RELEASE SUCCESS" else set to "RELEASE FAILED" as described in subclause 15.2.23; and
 - ix) shall include in the SIP request, the FD HTTP TERMINATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1;
 - c) shall send the SIP MESSAGE request towards the originating participating MCDData function as specified in 3GPP TS 24.229 [5]; and
- 18) if the application/vnd.3gpp.mcdata-signalling MIME body contains an FD HTTP TERMINATION message and Termination information type IE set to other than "TERMINATION REQUEST" then follow procedures described on subclause 13.2.5 and subclause 13.2.6."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.1]

"Upon receipt of a "SIP MESSAGE request for FD using HTTP for originating participating MCDData function", the participating MCDData function:

...

- 2) shall determine the MCDData ID of the originating user from the public user identity in the P-Asserted-Identity header field of the SIP MESSAGE request, and shall authorise the calling user;

NOTE: The MCDData ID of the calling user is bound to the public user identity at the time of service authorisation, as documented in subclause 7.3.

...

- 4) if `<mcddata-controller-psi>` element is present in the `application/vnd.3gpp.mcddata-info+xml`, shall use its value as public service identity of the controlling MCDData function. Otherwise, if the `<request-type>` element in the `application/vnd.3gpp.mcddata-info+xml` MIME body of the SIP MESSAGE request is:
 - a) set to a value of "group-fd", shall determine the public service identity of the controlling MCDData function hosting the group standalone FD using HTTP service, associated with the MCDData group identity in the `<mcddata-request-uri>` element of the `application/vnd.3gpp.mcddata-info+xml` MIME body in the SIP MESSAGE request; or

...

...

- 6) shall determine whether the MCDData user identified by the MCDData ID is authorised for MCDData communications by following the procedures in subclause 11.1;

...

- 8) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 9) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;
- 10) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10A) if the incoming SIP MESSAGE request contains an `application/vnd.3gpp.mcddata-info+xml` MIME body that contains a `<functional-alias-URI>` element, shall check if the status of the functional alias is activated for the MCDData ID. If the functional alias status is activated, then the participating MCDData function shall set the `<functional-alias-URI>` element of the `application/vnd.3gpp.mcddata-info+xml` MIME body in the outgoing SIP INVITE request to the received value, otherwise shall not include a `<functional-alias-URI>` element;
- 11) shall include the MCDData ID of the originating user in the `<mcddata-calling-user-id>` element of the `application/vnd.3gpp.mcddata-info+xml` MIME body of the outgoing SIP MESSAGE request;
- 12) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.fid" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 13) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 14) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 14):

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 14):

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request in step 14) the participating MCDData function:

- 1) shall generate a SIP response according to 3GPP TS 24.229 [5];
- 2) shall include Warning header field(s) that were received in the incoming SIP response; and
- 3) shall forward the SIP response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.2]

"Upon receipt of a:

- "SIP MESSAGE request for FD using HTTP for terminating participating MCDData function"; or
- "SIP MESSAGE network notification for FD using HTTP for terminating participating MCDData function";

the participating MCDData function:

...

- 2) shall use the MCDData ID present in the <mcdData-request-uri> element of the application/vnd.3gpp.mcdData-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and public user identity of the terminating MCDData user;

...

- 4) if the SIP MESSAGE is a "SIP MESSAGE request for FD using HTTP for terminating participating MCDData function", and if the application/vnd.3gpp.mcdData-signalling MIME body contains an FD SIGNALLING PAYLOAD message with a FD disposition request type IE, shall store the value of the Conversation ID IE, the value of the Message ID IE and the payload IE in the FD SIGNALLING PAYLOAD message;
- 5) if the SIP MESSAGE is a "SIP MESSAGE network notification for FD using HTTP for terminating participating MCDData function", and if FD NETWORK NOTIFICATION message within the application/vnd.3gpp.mcdData-signalling MIME body contains an FD notification type IE with value set as "FILE EXPIRED UNAVAILABLE TO DOWNLOAD" as specified in subclause 15.2.6, the file identified using Conversation ID IE shall be removed from the stored file list;
- 5) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- ...
- 6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdData.fd" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request; and
- 7) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the controlling MCDData function according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP response according to 3GPP TS 24.229 [5];
- 2) shall include Warning header field(s) that were received in the incoming SIP response; and
- 3) shall forward the SIP response to the controlling MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.2.2]

"The MCDData client:

- 1) if the FD SIGNALLING PAYLOAD message contains a new Conversation ID, shall instantiate a new conversation with the Message ID in the FD SIGNALLING PAYLOAD identifying the first message in the conversation thread;
- 2) if the FD SIGNALLING PAYLOAD message contains an existing Conversation ID and:
 - a) if the FD SIGNALLING PAYLOAD message does not contain an InReplyTo message ID, shall use the Message ID in the FD SIGNALLING PAYLOAD to identify a new message in the existing conversation thread; and

- b) if the FD SIGNALLING PAYLOAD message contains an InReplyTo message ID, shall associate the message to an existing message in the conversation thread as identified by the InReplyTo message ID in the FD SIGNALLING PAYLOAD, and use the Message ID in the FD SIGNALLING PAYLOAD to identify the new message;
 - 3) may store the Conversation ID, Message ID, InReplyTo message ID and Date and time in local storage;
 - 4) if the FD SIGNALLING PAYLOAD message does not contain an Application ID IE and does not contain an Extended application ID IE:
 - a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is for user consumption;
 - b) shall notify the user or application that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically; and
 - c) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the user or application;
 - 5) if the FD SIGNALLING PAYLOAD message contains an Application ID IE:
 - a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is not for user consumption;
 - b) if the Application ID value is unknown, shall discard the FD message and exit this subclause;
 - c) if the Application ID value is known, shall notify the application that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically; and
- NOTE 1: If the FD request is addressed to a non-MCData application that is not running, the MCData client starts the local non-MCData application. Subsequent automatic download of the file is then started and the file is delivered to that application.
- d) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the application;
 - 6) if the FD SIGNALLING PAYLOAD message contains an Extended application ID IE:
 - a) shall determine that the payload contained in the Payload IE in the FD SIGNALLING PAYLOAD message is not for user consumption;
 - b) if the Extended application ID value is unknown, shall discard the FD message and exit this clause;
 - c) if the Extended application ID value is known, shall notify the application that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically; and
- NOTE 2: If the FD request is addressed to a non-MCData application that is not running, the MCData client starts the local non-MCData application. Subsequent automatic download of the file is then started and the file is delivered to that application.
- d) if the FD SIGNALLING PAYLOAD message contains a Metadata IE, shall deliver the contents of the Metadata IE to the application;
 - 7) shall generate an FD NOTIFICATION indicating acceptance of the FD request as specified in subclause 12.2.1.1;
 - 8) shall attempt to download the file as identified by the file URL in the Payload IE in the FD SIGNALLING PAYLOAD message, as specified in subclause 10.2.3.1; and
 - 9) if the received FD SIGNALLING PAYLOAD message contains an FD disposition request type IE requesting a file download completed update indication, then after the file has been successfully downloaded, shall generate an FD NOTIFICATION indicating file download completed, by following the procedures in subclause 12.2.1.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.2.2]

"In order to generate an FD message, the MCDData client:

- 1) shall generate an FD SIGNALLING PAYLOAD message as specified in subclause 15.1.3; and
- 2) shall include in the SIP request, the FD SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1.

When generating an FD SIGNALLING PAYLOAD message as specified in subclause 15.1.3, the MCDData client:

- 1) shall set the Date and time IE to the current time as specified in subclause 15.2.8;
- 2) if the FD message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in subclause 15.2.9;
- 3) if the FD message continues an existing unfinished conversation, shall set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in subclause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in subclause 15.2.10;
- 5) if the FD message is in reply to a previously received MCDData message, shall include the InReplyTo message ID IE with the Message ID value in the previously received MCDData message;
- 6) if the FD message is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7 and shall not include an Extended application ID IE as specified in subclause 15.2.24;
- 7) if the FD message is intended for an application on the terminating MCDData client, shall include:
 - a) an Application ID IE with a Application ID value representing the intended application as specified in subclause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in subclause 15.2.24;

NOTE: The value and field chosen for coding the identity of the application are coordinated by the mission critical organisation.

- 8) may include an FD disposition request type IE set to "FILE DOWNLOAD COMPLETE UPDATE" as specified in subclause 15.2.4;
- 9) if requiring mandatory download at the recipient side, shall include a Mandatory download IE as specified in subclause 15.2.16 set to the value of "MANDATORY DOWNLOAD";
- 10) shall include a Payload IE with:
 - a) the Payload content type set to "FILEURL" as specified in subclause 15.2.13; and
 - b) the URL of the file in the Payload data as as specified in subclause 15.2.13; and
- 11) may include a Metadata IE with the required file description information and file availability information, as specified in subclause 15.2.17."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 15.2.6]

"The purpose of the Mandatory download information element is for the originating client to inform the terminating client that a file must be downloaded immediately.

The value part of the Mandatory download information element is coded as shown in Figure 15.2.16-1 and Table 15.2.16-1.

The Mandatory download information element is a type 1 information element.

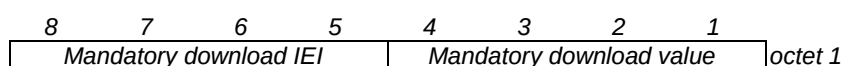


Figure 15.2.16-1: Mandatory download

Table 15.2.16-1: Mandatory download

Mandatory download value (octet 1)				
Bits				
4	3	2	1	
0	0	0	1	MANDATORY DOWNLOAD
All other values are reserved.				

"

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.4]

"The MCDData client and the MCDData server shall support several MIME bodies in SIP requests and SIP responses.

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

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

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

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

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

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 11.2]

"If the controlling MCDData function receives a one-to-one file distribution using HTTP or a group standalone file distribution using HTTP without the mandatory download indication the controlling MCDData function:

- 1) if the file distribution request contained metadata, shall retrieve the filesize contained in the fileselector of the Metadata IE in the FD request;
- 2) if the file distribution request did not contain metadata, shall determine the size of the file referenced by the file URL contained in FD request;
- ...
- 4) for group standalone file distribution using HTTP, shall determine if the filesize is less than or equal to the value contained the <mcdData-on-network-max-data-size-auto-recv> element of the MCDData group document associated with the MCDData group identity in the request, as specified in 3GPP TS 24.481 [11]
- 5) if condition 3) or 4) is true, shall determine that the mandatory download indication needs to be included in the file distribution request sent to the terminating MCDData client;"

5.3.2.3 Test description

5.3.2.3.1 Pre-test conditions

System Simulator:

- SS (MCData Server)
 - SS (MCData Server) provides the participating MCData functions.
- SS-UE1 (MCData client)
 - Simulated behind the SS (MCData Server).
- SS-UE2 (MCData client)
 - Simulated behind the SS (MCData Server).
- Test File 1 for CO FD as specified in ETSI TS 104 149-1 [15], clause A.2.1 is available at the SS-UE1 (MCData client) for upload.

IUT:

- IUT (MCData Server)
 - IUT (MCData Server) provides the controlling MCData function.
- The IUT (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCData Server) is connected to SS (MCData Server).
- The SS-UE1 (MCData client) and the SS-UE2 (MCData client) are registered and authorized to use the MCData system.
- SS-UE1 (MCData client) and SS-UE2 (MCData client) are affiliated to the group.
- The IUT (MCData Server) is the controlling server of the group.

5.3.2.3.2 Test procedure sequence

Table 5.3.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the IUT (MCDData Server) correctly perform procedure 'Discovery of the absolute URI of the media storage function' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.10.3-1?	-	-	1	P
2	Check: Does the IUT (MCDData Server) correctly perform procedure 'FD File upload using HTTP' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.8.3-1, to send test file 1 (ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.1)?	-	-	2	P
3	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone group FD SIGNALLING PAYLOAD message for mandatory download, from SS-UE1 (MCDData Client), containing the URL of the file and without disposition request.	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 4 and 5 might be performed in parallel.	-	-	-	-
4	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	3	P
5	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	3	P
6	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
7	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a FD disposition notification of "FILE DOWNLOAD REQUEST ACCEPTED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 8 and 9 might be performed in parallel.	-	-	-	-
8	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	4	P
9	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	4	P
10	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
11	Check: Does the IUT (MCDData Server) correctly perform procedure 'FD File download using HTTP' as described in ETSI TS 104 149-1 [15], Annex A, Table A.4.9.3-1, to download test file 2 (ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.2)?	-	-	5	P
12	Check: Is the content of the downloaded file the same as specified in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), clause A.2.2?	-	-	5	P

5.3.2.3.3 Specific message contents

Table 5.3.2.3.3-1: SIP MESSAGE from the SS-UE1 (MCDData client), through the SS (MCDData Server) (Step 1, Table 5.3.2.3.2-1; Step 1a1, ETSI TS 104 149-1 [15], Table A.4.10.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table A.4.10.4-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.3.3	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.3.2.3.3-2			

Table 5.3.2.3.3-2: MCDData-Info (Table 5.3.2.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.3C.8.4-2				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
request-type	"msf-disc-req"			
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
mcdData-calling-group-id	Encrypted (note) <mcdData-calling-group-id> with mcdDataURI set to px_MCDData_Group_A_ID			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A				

Table 5.3.2.3.3-3: SIP MESSAGE from the IUT (MCDData Server) (Step 1, Table 5.3.2.3.2-1; Step 1a3, ETSI TS 104 149-1 [15], Table A.4.10.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table A.4.10.4-3				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.1.3.4	

Table 5.3.2.3.3-4: HTTP POST from the SS-UE1 (MCDData Client)
(Step 2, Table 5.3.2.3.2-1; Step 1, ETSI TS 104 149-1 [15], Table A.4.8.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-1
--

Table 5.3.2.3.3-5: HTTP 201 Created from the IUT (MCDData Server) to the SS-UE1 (MCDData Client)
(Step 2, Table 5.3.2.3.2-1; Step 3, ETSI TS 104 149-1 [15], Table A.4.8.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-2
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Table 5.3.2.3.3-6: HTTP GET from the SS-UE2 (MCDData Client)
(Step 11, Table 5.3.2.3.2-1; Step 1, ETSI TS 104 149-1 [15], Table A.4.9.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-9
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Table 5.3.2.3.3-7: HTTP 200 (OK) from the IUT (MCDData Server) to the SS-UE2 (MCDData Client)
(Step 11, Table 5.3.2.3.2-1; Step 2, ETSI TS 104 149-1 [15], Table A.4.9.3-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-10

Table 5.3.2.3.3-8: SIP MESSAGE from the SS (MCDData Server) (Step 3, Table 5.3.2.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], 6.2.2.3.3-3				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.3.2.3.3-9			

Table 5.3.2.3.3-9: MCDData-Info (Table 5.3.2.3.3-8)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.2.7.3.3-12				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.3.2.3.3-10: SIP MESSAGE from the IUT (MCDData Server) (Step 4, Table 5.3.2.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 10.2.4.4.2	

Table 5.3.2.3.3-11: SIP MESSAGE from the SS (MCDData Server) (Step 7, Table 5.3.2.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.2.2.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.3.2.3.3-12			

Table 5.3.2.3.3-12: MCDData-Info (Table 5.3.2.3.3-11)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.2.8.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_B			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.3.2.3.3-13: SIP MESSAGE from the IUT (MCDData Server) (Step 8, Table 5.3.2.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.2.7.3.3-14				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3	

5.4 Enhanced Status (ES)

5.4.1 MCDATA Server - MCDATA Server / Enhanced Status (ES) / Controlling server

5.4.1.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing an Enhanced Status message with "DELIVERY" disposition request from SS-
UE1 (MCDATA Client) to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}
```

(2)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the Enhanced Status
message }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing the disposition notification of "DELIVERED" to IUT (MCDATA Server) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) providing the
terminating participating MCDATA function and responds with a SIP 202 (Accepted) to SS (MCDATA
Server) providing the originating participating MCDATA function }
}
```

5.4.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 14.2.1.1, 9.2.2.2.1, 14.2.2.1, 9.2.2.3.1, 14.2.3.1, 9.2.2.4.1, 14.2.3.2, 9.2.2.4.2, 12.2.1.1, 6.2.3.1, 12.2.2.1 and 12.2.3. Unless otherwise stated, these are Rel-15 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.1.1]

"Upon receiving a request from the MCDATA user to send an enhanced status to an MCDATA group and the <mcdatalallow-enhanced-status> element under the <list-service> element as defined in 3GPP TS 24.481 [11] is set to "true", the MCDATA client:

- 1) *shall use the "id" attribute of the MCDATA user selected operation value from <mcdatalenhanced-status-operational-values> element under <list-service> element as defined in 3GPP TS 24.481 [11], to generate a group standalone SDS message by following the procedure described in subclause 9.2.2.2.1."*

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.2.1]

"The MCDATA client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDATA client:

- 1) *shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;*

...

- 3) *if a group standalone SDS message is to be sent:*

...

- b) *shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdatalinfo+xml MIME body with:*

- i) *the <request-type> element set to a value of "group-sds";*
- ii) *the <mcdatalrequest-uri> element set to the MCDATA group identity;*

- iii) the <mcddata-client-id> element set to the MCDData client ID of the originating MCDData client; and
 - iv) if the MCDData client is aware of active functional aliases, and an active functional alias is to be included in the SIP MESSAGE request, the <functional-alias-URI> set to the URI of the used functional alias;
- 4) shall generate a standalone SDS message as specified in subclause 6.2.2.1; and
 - 5) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.2.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDData function", the participating MCDData function should follow the procedure described in subclause 9.2.2.3.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDData function", the participating MCDData function:

...

- 9) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 10) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;
- 11) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 12) shall include the MCDData ID of the originating user in the <mcddata-calling-user-id> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the outgoing SIP MESSAGE request;

...

- 13) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 15):

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function should follow the procedure described in subclause 9.2.2.4.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1]

"This subclause describes the procedures for sending a SIP MESSAGE from the controlling MCDData function and is initiated by the controlling MCDData function as a result of an action in subclause 9.2.2.4.2."

The controlling MCDData function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];

- 2) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.sds* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) *application/vnd.3gpp.mcdata-info+xml* MIME body;
 - b) *application/vnd.3gpp.mcdata-signalling* MIME body; and
 - c) *application/vnd.3gpp.mcdata-payload* MIME body
- 5) in the *application/vnd.3gpp.mcdata-info+xml* MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and
 - b) if the <request-type> element in the *application/vnd.3gpp.mcdata-info+xml* MIME body of the incoming SIP MESSAGE request was set to a value of "group-sds", shall set the <mcdata-calling-group-id> element to the group identity;
- 6) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;
- 7) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 8) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
- 9) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.3.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function should follow the procedure described in subclause 9.2.2.4.2."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function:

...

- 3) shall decode the contents of the *application/vnd.3gpp.mcdata-signalling* MIME body contained in the SIP MESSAGE;
- 4) if the *application/vnd.3gpp.mcdata-signalling* MIME body contains a SDS SIGNALLING PAYLOAD message with a SDS disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the SDS SIGNALLING PAYLOAD message;

NOTE: The controlling MCDData function uses the Conversation ID and Message ID for correlation with disposition notifications.

...

- 6) if the <request-type> element in the *application/vnd.3gpp.mcdata-info+xml* MIME body of the SIP MESSAGE request is set to a value of "group-sds":

...

- h) shall determine targeted group members for MCDData communications by following the procedures in subclause 6.3.4;
 - j) if the procedures in subclause 6.3.4 result in no affiliated members found in the selected MCDData group, shall return a SIP 403 (Forbidden) response with the warning text set to "198 no users are affiliated to this group" in a Warning header field as specified in subclause 4.9, and skip the rest of the steps below; and
 - k) shall send SIP MESSAGE requests to the targeted group members identified in step h) above by following the procedure in subclause 9.2.2.4.1;
- 7) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for standalone SDS for controlling MCDData function"; and
 - 8) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.1.1]

"The MCDData client shall follow the procedures in this subclause to:

- indicate to an MCDData client that an SDS message was delivered, read or delivered and read when the originating client requested a delivery, read or delivery and read report;
- indicate to the participating MCDData function serving the MCDData user that an SDS message was undelivered. The participating MCDData function can store the message for later re-delivery;
- indicate to an MCDData client that a request for FD was accepted, deferred or rejected; or
- indicate to an MCDData client that a file download has been completed;

Before sending a disposition notification the MCDData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCDData client determines the group identity from the contents of the <mcddata-calling-group-id> element contained in the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SDS or FD message request; and
- the MCDData user targeted for the disposition notification. The MCDData client determines the targeted MCDData user from the contents of the <mcddata-calling-user-id> element contained in the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SDS or FD message request.

The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- 2) shall follow the rules specified in subclause 6.4 for the handling of MIME bodies in a SIP message when processing the remaining steps in this subclause;
- 3) shall insert in the SIP MESSAGE request an application/resource-lists+xml MIME body containing the MCDData ID of the targeted MCDData user, according to rules and procedures of IETF RFC 5366 [18];
- 4) void;
- 5) if sending a disposition notification in response to an MCDData group data request, shall include an <mcddata-calling-group-id> element set to the MCDData group identity in the application/vnd.3gpp.mcddata-info+xml MIME body;
- 6) if requiring to send an SDS notification, shall generate an SDS NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.1;
- 7) if requiring to send an FD notification, shall generate an FD NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.2; and

- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.3.1]

"In order to generate an SDS notification, the MCDData client:

- 1) shall generate an SDS NOTIFICATION message as specified in subclause 15.1.5; and
- 2) shall include in the SIP request, the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1.

When generating an SDS NOTIFICATION message as specified in subclause 15.1.5, the MCDData client:

- 1) if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED" as specified in subclause 15.2.5;
- 2) if sending a read notification, shall set the SDS disposition notification type IE as "READ" as specified in subclause 15.2.5;
- 3) if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ" as specified in subclause 15.2.5;
- 4) if the SDS message could not be delivered to the user or application (e.g. due to lack of storage), shall set the SDS disposition notification type IE as "UNDELIVERED" as specified in subclause 15.2.5;
- 5) shall set the Date and time IE to the current time to as specified in subclause 15.2.8;
- 6) shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message as specified in subclause 15.2.9;
- 7) shall set the Message ID to the value of the Message ID that was received in the SDS message as specified in subclause 15.2.10;
- 8) if the SDS message was destined for the user, shall not include an Application ID IE (as specified in subclause 15.2.7) and shall not include an Extended application ID IE (as specified in subclause 15.2.24); and
- 9) if the SDS message was destined for an application, shall include:
 - a) an Application ID IE set to the value of the Application ID that was included in the SDS message as specified in subclause 15.2.3; or
 - b) an Extended application ID IE set to the value of the Extended application ID that was included in the SDS message as specified in subclause 15.2.24."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the participating MCDData function:

...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function;

NOTE: How the participating MCDData function determines the controlling MCDData function to forward notification message is out of scope of the present document.

- 9) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;

- 10) if not already included as part of step 8) above, shall include an *application/vnd.3gpp.mcdata-info+xml* MIME body in the outgoing SIP MESSAGE request, containing an *<mcdata-calling-user-id>* element set to the MCDData ID of the originating user;
- 11) if the SIP MESSAGE is a "SIP MESSAGE request for SDS disposition notification for MCDData server ", shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- ...
- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the controlling MCDData function:

- ...
- 4) shall attempt to correlate the disposition notification to the original SDS or FD request using the values contained in the Conversation ID and Message ID of the SDS NOTIFICATION message or FD NOTIFICATION message contained in the *application/vnd.3gpp.mcdata-signalling* MIME body of the SIP MESSAGE;
- ..
- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) if sending an SDS disposition notification:
 - a) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.sds* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
 - b) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8]] in the outgoing SIP MESSAGE request;
- ...
- 10) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

NOTE 1: How the controlling MCDData function finds the address of the terminating MCDData participating function is out of the scope of the current release.

- 11) if sending an SDS disposition notification, shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds";
- ...
- 13) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 14) shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcdata-request-uri> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;
- 15) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-calling-group-id> element:
- a) shall retrieve the group document for the MCDData group id contained in the <mcdata-calling-group-id> element from the group management server, if not already cached, and identify the group members;
 - ...
 - d) if MCDData disposition notifications do not need to be aggregated, shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request and shall continue with step 16;
- 16) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body without an <mcdata-calling-group-id> element shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 17) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5];
- 18) shall generate a SIP 202 (Accepted) response in response to the
- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
 - "SIP MESSAGE request for FD disposition notification for MCDData server"; and
- 19) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

5.4.1.3 Test description

5.4.1.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
 - SS (MCDData Server) provides the participating MCDData functions.
- SS-UE1 (MCDData client)
 - Simulated behind the SS (MCDData Server).
- SS-UE2 (MCDData client)
 - Simulated behind the SS (MCDData Server).

IUT:

- IUT (MCDData Server)
 - IUT (MCDData Server) provides the controlling MCDData function.

- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to SS (MCDData Server).
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are registered and authorized to use the MCDData system.
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are affiliated with Group A and are authorized to send standalone SDS messages.
- The <max-payload-size-sds-cplane-bytes> element in the MCDData service configuration document as specified in ETSI TS 124 484 [3] (3GPP TS 24.484), shall be large enough to allow the sending of the standalone SDS message using the signalling plane.
- The IUT (MCDData Server) is the controlling server of the group.

5.4.1.3.2 Test procedure sequence

Table 5.4.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward an Enhanced Status message from SS-UE1 (MCDData Client) to Group A, with disposition request "DELIVERY" and enhanced status payload with id=0 ("going to the operation site").	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 2 and 3 might be performed in parallel.	-	-	-	-
2	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	1	P
3	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	1	P
4	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
5	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE2 (MCDData Client) to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
-	EXCEPTION: Depending on the MCDData Server implementation, steps 6 and 7 might be performed in parallel.	-	-	-	-
6	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE request to the SS (MCDData Server) providing the terminating participating MCDData function?	-->	SIP MESSAGE	2	P
7	Check: Does the IUT (MCDData Server) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	2	P
8	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-

5.4.1.3.3 Specific message contents

Table 5.4.1.3.3-1: SIP MESSAGE from the SS (MCData Server) (Step 1, Table 5.4.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.2-1, condition MCDATA_SDS, MCDATA_SIGNALLING, MCDATA_PAYLOAD				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
port	protected server port of the SS			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 5.4.1.3.3-2			
MIME body part		MCData Data signalling message		

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.2-1, condition MCDATA_SDS, MCDATA_SIGNALLING, MCDATA_PAYLOAD				
Information Element	Value/remark	Comment	Reference	Condition
MIME-part-body	MCDATA Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.3.1.3.3-2A			
MIME body part		MCDATA Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.3.1.3.3-3			

Table 5.4.1.3.3-2: MCDATA-Info (Table 5.4.1.3.3-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3, condition MCD_grp				
Information Element	Value/remark	Comment	Reference	Condition
mcddata-info				
mcddata-Params				
mcddata-calling-user-id	Encrypted (note) <mcddata-calling-user-id> with mcddataURI set to px_MCDATA_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.4.1.3.3-3: SIP MESSAGE from the IUT (MCDATA Server) (Step 2, Table 5.4.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.2-1, condition MCDATA_SDS, MCDATA_SIGNALLING, MCDATA_PAYLOAD				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDATA_PublicServiceId_A	The public service identity of the MCDATA Server which is simulated by the SS (MCDATA Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDATA Server	Address of the MCDATA Server providing the controlling MCDATA function serving the MCDATA user		
port	protected server port of the MCDATA server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDATA_PublicServiceId_B	The URI of the MCDATA Server providing the controlling function.		

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.2-1, condition MCDATA_SDS, MCDATA_SIGNALLING, MCDATA_PAYLOAD				
Information Element	Value/remark	Comment	Reference	Condition
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.4	
Message-body				
MIME body part		MCDATA-Info		
MIME-part-body	MCDATA-Info as described in Table 6.3.1.3.3-3			
MIME body part		MCDATA Data signalling message		
MIME-part-body	MCDATA Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.3.2.3.3-3			
MIME body part		MCDATA Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.3.2.3.3-4			

Table 5.4.1.3.3-4: SIP MESSAGE from the SS (MCDData Server) (Step 5, Table 5.4.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-4				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDData function serving the MCDData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 5.4.1.3.3-5			

Table 5.4.1.3.3-5: MCDData-Info (Table 5.4.1.3.3-4)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcddata-info				
mcddata-Params				
mcddata-calling-user-id	Encrypted (note) <mcddata-calling-user-id> with mcddataURI set to px_MCDData_ID_User_B			
mcddata-calling-group-id	Encrypted (note) <mcddata-calling-group-id> with mcddataURI set to px_MCDData_Group_A_ID			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 5.4.1.3.3-6: SIP MESSAGE from the IUT (MCDData Server) (Step 6, Table 5.4.1.3.2-1)

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the MCDData Server	Address of the MCDData Server providing the controlling MCDData function serving the MCDData user		
port	protected server port of the MCDData server			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.4	

5.4.2 MCDATA Server - MCDATA Server / Enhanced Status (ES) / Participating server

5.4.2.1 Test Purpose (TP)

(1)

```
with { IUT (MCDATA Server) connected to SS-UE1 (MCDATA Client), SS-UE2 (MCDATA Client) and SS
(MCDATA Server) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message containing an Enhanced Status message
with "DELIVERY" disposition request from SS-UE1 (MCDATA Client) }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE1 (MCDATA Server) and forwards a SIP 200 (OK) from SS-UE2
(MCDATA Client) to SS (MCDATA Server) }
}
```

(2)

```
with { IUT (MCDATA Server) having forwarded the SIP MESSAGE message containing the Enhanced Status
message to SS-UE2 (MCDATA Client) }
ensure that {
  when { IUT (MCDATA Server) receives a SIP MESSAGE message from the SS-UE2 (MCDATA Client)
containing a "DELIVERED" disposition notification }
  then { IUT (MCDATA Server) forwards the SIP MESSAGE message to SS (MCDATA Server) and forwards
the SIP MESSAGE message from SS (MCDATA Server) to SS-UE1 (MCDATA Client) and forwards a SIP 202
(Accepted) from SS (MCDATA Server) to SS-UE2 (MCDATA Client) and forwards a SIP 200 (OK) from SS-UE1
(MCDATA Client) to SS (MCDATA Server) }
}
```

5.4.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 14.2.1.1, 14.2.2.1, 14.2.2.2, 14.2.3.1, 14.2.3.2, 9.2.2.2.1, 6.2.4.1, 6.2.2.1, 9.2.2.3.1, 9.2.2.3.2, 6.3.2.1, 9.2.2.4.1, 9.2.2.4.2, 12.2.1.1, 12.2.2.1, 12.2.2.2 and 12.2.3. Unless otherwise stated, these are Rel-15 requirements.

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.1.1]

"Upon receiving a request from the MCDATA user to send an enhanced status to an MCDATA group and the <mcdatalallow-enhanced-status> element under the <list-service> element as defined in 3GPP TS 24.481 [11] is set to "true", the MCDATA client:

- 1) *shall use the "id" attribute of the MCDATA user selected operation value from <mcdatalenhanced-status-operational-values> element under <list-service> element as defined in 3GPP TS 24.481 [11], to generate a group standalone SDS message by following the procedure described in subclause 9.2.2.2.1."*

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.2.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDATA function", the participating MCDATA function should follow the procedure described in subclause 9.2.2.3.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.2.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for terminating participating MCDATA function", the participating MCDATA function should follow the procedure described in subclause 9.2.2.3.2."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDATA function", the controlling MCDATA function should follow the procedure described in subclause 9.2.2.4.1."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 14.2.3.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDATA function", the controlling MCDATA function should follow the procedure described in subclause 9.2.2.4.2."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.2.1]

"The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;
- ...
- 3) if a group standalone SDS message is to be sent:
 - ...
 - b) shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with:
 - i) the <request-type> element set to a value of "group-sds";
 - ii) the <mcdata-request-uri> element set to the MCDData group identity;
 - iii) the <mcdata-client-id> element set to the MCDData client ID of the originating MCDData client; and
 - iv) if the MCDData client is aware of active functional aliases, and an active functional alias is to be included in the SIP MESSAGE request, the <functional-alias-URI> set to the URI of the used functional alias;
- 4) shall generate a standalone SDS message as specified in subclause 6.2.2.1; and
- 5) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.4.1]

"In a SIP MESSAGE request, the MCDData client:

- 1) when sending SDS messages or SDS disposition notifications:
 - a) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];
 - b) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8]; and
 - c) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7] in the SIP MESSAGE request;
- ...
- 3) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [5]; and
- 4) shall set the Request-URI to the public service identity identifying the participating MCDData function serving the MCDData user."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.2.2.1]

"In order to generate an SDS message, the MCDData client:

- 1) shall generate an SDS SIGNALLING PAYLOAD message as specified in subclause 15.1.2;
- 2) shall generate a DATA PAYLOAD message as specified in subclause 15.1.4;
- 3) shall include in the SIP request, the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1; and

- 4) shall include in the SIP request, the DATA PAYLOAD message in an application/vnd.3gpp.mcdata-payload MIME body as specified in subclause E.2.

When generating an SDS SIGNALLING PAYLOAD message as specified in subclause 15.1.2, the MCDData client:

- 1) shall set the Date and time IE to the current time as specified in subclause 15.2.8;
- 2) if the SDS message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in subclause 15.2.9;
- 3) if the SDS message continues an existing unfinished conversation, shall set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in subclause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in subclause 15.2.10;
- 5) if the SDS message is in reply to a previously received SDS message, shall include the InReplyTo message ID IE with the Message ID value in the previously received SDS message;
- 6) if the SDS message is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7 and shall not include an Extended application ID IE as specified in subclause 15.2.24;
- 7) if the SDS message is intended for an application on the terminating MCDData client, shall include:
 - a) an Application ID IE with a Application ID value representing the intended application as specified in subclause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in subclause 15.2.24;

NOTE: The value chosen for the Application ID value is decided by the mission critical organisation.

- 8) if only a delivery disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY" as specified in subclause 15.2.3;
- 9) if only a read disposition notification is required shall include a SDS disposition request type IE set to "READ" as specified in subclause 15.2.3;
- 10) if both a delivery and read disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY AND READ" as specified in subclause 15.2.3; and
- 11) may set the User location IE to the current location of the UE as specified in subclause 15.2.25.

When generating an DATA PAYLOAD message for SDS as specified in subclause 15.1.4, the MCDData client:

- 1) shall set the Number of payloads IE to the number of Payload IEs that needs to be encoded, as specified in subclause 15.2.12;
- 2) if end-to-end security is required for a one-to-one communication, shall include the Security parameters and Payload IE with security parameters as described in 3GPP TS 33.180 [26]. Otherwise, if end-to-end security is not required for a one-to-one communication, shall include the Payload IE as specified in subclause 15.1.4; and
- 3) for each Payload IE included:
 - a) if the payload is text, shall set the Payload content type as "TEXT" as specified in subclause 15.2.13;
 - b) if the payload is binary data, shall set the Payload content type as "BINARY" as specified in subclause 15.2.13;
 - c) if the payload is hyperlinks, shall set the Payload content type as "HYPERLINKS" as specified in subclause 15.2.13;
 - d) if the payload is location, shall set the Payload content type as "LOCATION" as specified in subclause 15.2.13;
 - e) if payload is enhanced status for a group, shall set the Payload content type as "ENHANCED STATUS" as specified in subclause 15.2.13; and

f) shall include the data to be sent in the Payload data."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for originating participating MCDData function", the participating MCDData function:

...

4) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is:

a) set to a value of "group-sds", shall determine the public service identity of the controlling MCDData function associated with the MCDData group identity in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body in the SIP MESSAGE request; or

...

9) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];

10) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 4) in this subclause;

11) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;

12) shall include the MCDData ID of the originating user in the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;

12A) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body that contains a <functional-alias-URI> element, shall check if the status of the functional alias is activated for the MCDData ID. If the functional alias status is activated, then the participating MCDData function shall set the <functional-alias-URI> element of the application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP INVITE request to the received value, otherwise shall not include a <functional-alias-URI> element;

13) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and

15) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request in step 15):

1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and

2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request in step 15):

1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and

2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for terminating participating MCDData function", the participating MCDData function:

...

2) shall use the MCDData ID present in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and public user identity of the terminating MCDData user;

...

- 4) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- 5) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request; and
- 6) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the controlling MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.3.2.1]

"The participating MCDData function shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] and:

- 1) shall include in the SIP MESSAGE request all Accept-Contact header fields and all Reject-Contact header fields, with their feature tags and their corresponding values along with parameters according to rules and procedures of IETF RFC 3841 [8] that were received (if any) in the incoming SIP MESSAGE request;
- 2) shall set the Request-URI of the outgoing SIP MESSAGE request to the public user identity associated to the MCDData ID of the terminating MCDData user;
- 3) shall populate the outgoing SIP MESSAGE request MIME bodies as specified in subclause 6.4 and
- 4) shall copy the contents of the P-Asserted-Identity header field of the incoming SIP MESSAGE request to the P-Asserted-Identity header field of the outgoing SIP MESSAGE request."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1]

"The controlling MCDData function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 2) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;
- 4) shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in subclause 6.4:
 - a) application/vnd.3gpp.mcdata-info+xml MIME body;
 - b) application/vnd.3gpp.mcdata-signalling MIME body; and
 - c) application/vnd.3gpp.mcdata-payload MIME body
- 5) in the application/vnd.3gpp.mcdata-info+xml MIME body:
 - a) shall set the <mcdata-request-uri> element set to the MCDData ID of the terminating user; and
 - b) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP MESSAGE request was set to a value of "group-sds", shall set the <mcdata-calling-group-id> element to the group identity;
- 6) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

- 7) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 8) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
- 9) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the controlling MCDData function:

...

- 6) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is set to a value of "group-sds":

...

- h) shall determine targeted group members for MCDData communications by following the procedures in subclause 6.3.4;

...

- k) shall send SIP MESSAGE requests to the targeted group members identified in step h) above by following the procedure in subclause 9.2.2.4.1;

- 7) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for standalone SDS for controlling MCDData function"; and
- 8) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.1.1]

"The MCDData client shall follow the procedures in this subclause to:

- indicate to an MCDData client that an SDS message was delivered, read or delivered and read when the originating client requested a delivery, read or delivery and read report;
- indicate to the participating MCDData function serving the MCDData user that an SDS message was undelivered. The participating MCDData function can store the message for later re-delivery;
- indicate to an MCDData client that a request for FD was accepted, deferred or rejected; or
- indicate to an MCDData client that a file download has been completed;

Before sending a disposition notification the MCDData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCDData client determines the group identity from the contents of the <mcdata-calling-group-id> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request; and
- the MCDData user targeted for the disposition notification. The MCDData client determines the targeted MCDData user from the contents of the <mcdata-calling-user-id> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request.

The MCDData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6] with the clarifications given below.

The MCDData client:

- 1) shall build the SIP MESSAGE request as specified in subclause 6.2.4.1;

- 2) shall follow the rules specified in subclause 6.4 for the handling of MIME bodies in a SIP message when processing the remaining steps in this subclause;
- 3) shall insert in the SIP MESSAGE request an application/resource-lists+xml MIME body containing the MCDData ID of the targeted MCDData user, according to rules and procedures of IETF RFC 5366 [18];
- 4) void;
- 5) if sending a disposition notification in response to an MCDData group data request, shall include an <mcddata-calling-group-id> element set to the MCDData group identity in the application/vnd.3gpp.mcddata-info+xml MIME body;
- 6) if requiring to send an SDS notification, shall generate an SDS NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.1;
- 7) if requiring to send an FD notification, shall generate an FD NOTIFICATION message and include it in the SIP MESSAGE request as specified in subclause 6.2.3.2; and
- 8) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.1]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the participating MCDData function:

...

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function;

NOTE: How the participating MCDData function determines the controlling MCDData function to forward notification message is out of scope of the present document.

- 9) shall copy all MIME bodies included in the incoming SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10) if not already included as part of step 8) above, shall include an application/vnd.3gpp.mcddata-info+xml MIME body in the outgoing SIP MESSAGE request, containing an <mcddata-calling-user-id> element set to the MCDData ID of the originating user;
- 11) if the SIP MESSAGE is a "SIP MESSAGE request for SDS disposition notification for MCDData server ", shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;

...

- 14) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP MESSAGE request; and
- 15) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 202 (Accepted) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 202 (Accepted) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 202 (Accepted) response to the MCDData client according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP MESSAGE request, the participating MCDData function:

- 1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5]; and
- 2) shall send the SIP 200 (OK) response to the MCDData client according to 3GPP TS 24.229 [5]."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.2.2]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for terminating MCDData client"; or
- "SIP MESSAGE request for FD disposition notification for terminating MCDData client";

the participating MCDData function:

...

- 2) shall use the MCDData ID present in the <mcdData-request-uri> element of the application/vnd.3gpp.mcdData-info+xml MIME body of the incoming SIP MESSAGE request to retrieve the binding between the MCDData ID and the public user identity;

...

- 4) shall generate an outgoing SIP MESSAGE request as specified in subclause 6.3.2.1;
- 5) if sending an SDS disposition notification, shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdData.sds" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 5) if sending an FD disposition notification, shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdData.fd" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 6) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 2xx, 4xx, 5xx or 6xx response to the outgoing SIP MESSAGE request, the participating MCDData function shall forward the SIP response to the controlling MCDData function."

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 12.2.3]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server";

the controlling MCDData function:

...

- 4) shall attempt to correlate the disposition notification to the original SDS or FD request using the values contained in the Conversation ID and Message ID of the SDS NOTIFICATION message or FD NOTIFICATION message contained in the application/vnd.3gpp.mcdData-signalling MIME body of the SIP MESSAGE;

..

- 7) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6];
- 8) if sending an SDS disposition notification:
 - a) shall include an Accept-Contact header field containing the g.3gpp.mcdData.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8] in the outgoing SIP MESSAGE request;

- b) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [8]] in the outgoing SIP MESSAGE request;

...

- 10) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;

NOTE 1: How the controlling MCDData function finds the address of the terminating MCDData participating function is out of the scope of the current release.

- 11) if sending an SDS disposition notification, shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds";

...

- 13) shall copy the public user identity of the calling MCDData user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;

- 14) shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcdata-request-uri> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;

- 15) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-calling-group-id> element:

- a) shall retrieve the group document for the MCDData group id contained in the <mcdata-calling-group-id> element from the group management server, if not already cached, and identify the group members;

...

- d) if MCDData disposition notifications do not need to be aggregated, shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request and shall continue with step 16;

- 16) if the incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body without an <mcdata-calling-group-id> element shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request;

- 17) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [5];

- 18) shall generate a SIP 202 (Accepted) response in response to the

- "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- "SIP MESSAGE request for FD disposition notification for MCDData server"; and

- 19) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [5]."

5.4.2.3 Test description

5.4.2.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
- SS (MCDData Server) provides the controlling MCDData function.
- SS-UE1 (MCDData client)
- SS-UE2 (MCDData client)

IUT:

- IUT (MCDData Server)
 - IUT (MCDData Server) provides the originating and terminating participating MCDData functions.
- The IUT (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The IUT (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.

Preamble:

- The IUT (MCDData Server) is connected to SS (MCDData Server), to the SS-UE1 (MCDData client) and to the SS-UE2 (MCDData client).
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are registered and authorized to use the MCDData system.
- The SS-UE1 (MCDData client) and the SS-UE2 (MCDData client) are affiliated with Group A and are authorized to send standalone SDS messages.
- The <max-payload-size-sds-cplane-bytes> element in the MCDData service configuration document as specified in ETSI TS 124 484 [3] (3GPP TS 24.484), shall be large enough to allow the sending of the standalone SDS message using the signalling plane.

5.4.2.3.2 Test procedure sequence

Table 5.4.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS-UE1 (MCDData Client) sends a SIP MESSAGE request to the IUT (MCDData Server), to send an Enhanced Status message to Group A, with disposition request "DELIVERY" and enhanced status payload with id=0 ("going to the operation site").	<--	SIP MESSAGE	-	-
2	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to the SS (MCDData Server) providing the controlling function?	-->	SIP MESSAGE	1	P
3	The SS (MCDData Server) forwards the SIP MESSAGE to the IUT (MCDData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
4	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to SS-UE2 (MCDData Client)?	-->	SIP MESSAGE	1	P
5	The SS (MCDData Server) sends a SIP 202 (Accepted) response to the IUT (MCDData Server).	<--	SIP 202 (Accepted)	-	-
6	Check: Does the IUT (MCDData Server) forward the SIP 202 (Accepted) response to SS-UE1 (MCDData Client)?	-->	SIP 202 (Accepted)	1	P
7	The SS-UE2 (MCDData Client) sends a SIP 200 (OK) response to the IUT (MCDData Server).	<--	SIP 200 (OK)	-	-
8	Check: Does the IUT (MCDData Server) forward the SIP 200 (OK) response to SS (MCDData Server)?	-->	SIP 200 (OK)	1	P
9	The SS-UE2 (MCDData Client) sends a SIP MESSAGE request to the IUT (MCDData Server), to send a disposition notification of "DELIVERED" to SS-UE1 (MCDData Client).	<--	SIP MESSAGE	-	-
10	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to the SS (MCDData Server) providing the controlling function?	-->	SIP MESSAGE	2	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
11	The SS (MCDData Server) forwards the SIP MESSAGE to the IUT (MCDData Server), providing the terminating participating function.	<--	SIP MESSAGE	-	-
12	Check: Does the IUT (MCDData Server) forward the SIP MESSAGE to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	2	P
13	The SS (MCDData Server) sends a SIP 202 (Accepted) response to the IUT (MCDData Server).	<--	SIP 202 (Accepted)	-	-
14	Check: Does the IUT (MCDData Server) forward the SIP 202 (Accepted) response to SS-UE2 (MCDData Client)?	-->	SIP 202 (Accepted)	2	P
15	The SS-UE1 (MCDData Server) sends a SIP 200 (OK) response to the IUT (MCDData Server).	<--	SIP 200 (OK)	-	-
16	Check: Does the IUT (MCDData Server) forward the SIP 200 (OK) response to the SS (MCDData Server)?	-->	SIP 200 (OK)	2	P

5.4.2.3.3 Specific message contents

**Table 5.4.2.3.3-1: SIP MESSAGE from the SS-UE1 (MCDData Client) to the IUT (MCDData Server)
(Step 1, Table 5.4.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-1

**Table 5.4.2.3.3-2: SIP MESSAGE from the IUT (MCDData Server) to the SS (MCDData Server)
(Step 2, Table 5.4.2.3.2-1)**

Derivation Path: Table 5.4.1.3.3-1

**Table 5.4.2.3.3-3: SIP MESSAGE from the SS (MCDData Server) to the IUT (MCDData Server)
(Step 3, Table 5.4.2.3.2-1)**

Derivation Path: Table 5.4.1.3.3-3

**Table 5.4.2.3.3-4: SIP MESSAGE from the IUT (MCDData Server) to the SS-UE2 (MCDData Client)
(Step 4, Table 5.4.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-2

**Table 5.4.2.3.3-5: SIP MESSAGE from the SS-UE2 (MCDData Client) to the IUT (MCDData Server)
(Step 9, Table 5.4.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-4

**Table 5.4.2.3.3-6: SIP MESSAGE from the IUT (MCDData Server) to the SS (MCDData Server)
(Step 10, Table 5.4.2.3.2-1)**

Derivation Path: Table 5.4.1.3.3-4

**Table 5.4.2.3.3-7: SIP MESSAGE from the SS (MCDATA Server) to the IUT (MCDATA Server)
(Step 11, Table 5.4.2.3.2-1)**

Derivation Path: Table 5.4.1.3.3-6

**Table 5.4.2.3.3-8: SIP MESSAGE from the IUT (MCDATA Server) to the SS-UE1 (MCDATA Client)
(Step 12, Table 5.4.2.3.2-1)**

Derivation Path: ETSI TS 104 149-1 [15], Table 6.3.1.3.3-6
--

6 IWF - MCDATA Server operation

6.1 IWF - MCDATA Server / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / IWF Controlling role

6.1.1 Test Purpose (TP)

(1)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "DELIVERY" disposition request from SS-
UE1 (MCDATA Client) to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the
originating participating MCDATA function and forwards a SIP MESSAGE message containing the
disposition notification "DELIVERED" to SS (MCDATA Server) providing the terminating participating
MCDATA function }
}
```

(2)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "READ" disposition request from SS-UE1
(MCDATA Client) to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the
originating participating MCDATA function and forwards a SIP MESSAGE message containing the
disposition notification "DISPOSITION PREVENTED BY THE SYSTEM" to SS (MCDATA Server) providing the
terminating participating MCDATA function }
}
```

(3)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "READ" disposition request from SS-UE1
(MCDATA Client) to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the
originating participating MCDATA function and forwards a SIP MESSAGE message containing the
disposition notification "READ" to SS (MCDATA Server) providing the terminating participating MCDATA
function }
}
```

(4)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "DELIVERY AND READ" disposition request
from SS-UE1 (MCDATA Client) to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the
originating participating MCDATA function and forwards a SIP MESSAGE message containing the
disposition notification "DELIVERED" to SS (MCDATA Server) providing the terminating participating
MCDATA function and forwards a SIP MESSAGE message containing the disposition notification "READ" to
SS (MCDATA Server) providing the terminating participating MCDATA function }
}

```

(5)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) providing the originating participating MCDATA function forwards a SIP
MESSAGE message containing a one-to-one standalone SDS with "DELIVERY AND READ" disposition request
from SS-UE1 (MCDATA Client) to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 202 (Accepted) to SS (MCDATA Server) providing the
originating participating MCDATA function and forwards a SIP MESSAGE message containing the
disposition notification "DELIVERED AND READ" to SS (MCDATA Server) providing the terminating
participating MCDATA function }
}

```

(6)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDATA Client)
with "DELIVERY" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY" disposition request to SS (MCDATA Server) providing the terminating participating MCDATA
function and sends a SIP 202 (Accepted) after reception of "DELIVERED" disposition notification from
SS (MCDATA Server) providing the originating participating MCDATA function }
}

```

(7)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDATA Client)
with "READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY" disposition request to SS (MCDATA Server) providing the terminating participating MCDATA
function and sends a SIP 202 (Accepted) after reception of "READ" disposition notification from SS
(MCDATA Server) providing the originating participating MCDATA function }
}

```

(8)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDATA Client)
with "DELIVERY AND READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY" disposition request to SS (MCDATA Server) providing the terminating participating MCDATA
function and sends a SIP 202 (Accepted) after reception of "DELIVERED" disposition notification from
SS (MCDATA Server) providing the originating participating MCDATA function and sends a SIP 202
(Accepted) after reception of "READ" disposition notification from SS (MCDATA Server) providing the
originating participating MCDATA function }
}

```

(9)

```

with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDATA Client)
with "DELIVERY AND READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY" disposition request to SS (MCDATA Server) providing the terminating participating MCDATA
function and sends a SIP 202 (Accepted) after reception of "DELIVERED AND READ" disposition
notification from SS (MCDATA Server) providing the originating participating MCDATA function }
}

```

6.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 129 582 [17] (3GPP TS 29.582), clauses 9.2.2.4.1, 9.2.2.4.2, 9.2.2.2.1, 6.2.2.1 and 12.2.2. Unless otherwise stated, these are Rel-16 requirements.

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.4.1]

"This clause describes the procedures for sending a SIP MESSAGE from the IWF performing the controlling role and is initiated by the IWF performing the role of a controlling MCDData function as a result of an action in clause 9.2.2.4.2 or upon the determination by the IWF performing the controlling role that a SIP MESSAGE is to be sent on behalf of a user homed in the IWF.

The controlling MCDData function:

- 1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33];
- 2) shall include an Accept-Contact header field containing the *g.3gpp.mcdata.sds* media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6] in the outgoing SIP MESSAGE request;
- 3) shall include an Accept-Contact header field with the media feature tag *g.3gpp.icsi-ref* with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [6] in the outgoing SIP MESSAGE request;
- 4) if the SIP MESSAGE is to be sent as the result of receiving a SIP MESSAGE originated by an MCDData client, shall copy the following MIME bodies in the received SIP MESSAGE request into the outgoing SIP MESSAGE request by following the guidelines in clause 6.4; otherwise, if the SIP MESSAGE is to be sent on behalf of a user homed in the IWF, shall create the following MIME bodies in the outgoing SIP MESSAGE request by following the guidelines in clause 306.4 and the procedures in clause 9.2.2.2.1:
 - a) *application/vnd.3gpp.mcdata-info+xml* MIME body;
 - b) *application/vnd.3gpp.mcdata-signalling* MIME body; and
 - c) *application/vnd.3gpp.mcdata-payload* MIME body
- 5) in the *application/vnd.3gpp.mcdata-info+xml* MIME body:
 - a) shall set the *<mcdata-request-uri>* element set to the MCDData ID of the terminating user; and
 - b) if the SIP MESSAGE is to be sent as the result of receiving a SIP MESSAGE originated by an MCDData client, then if the *<request-type>* element in the *application/vnd.3gpp.mcdata-info+xml* MIME body of the incoming SIP MESSAGE request was set to a value of "group-sds", or if the SIP MESSAGE is to be sent on behalf of a user homed in the IWF and the IWF performing the controlling role determines that the outgoing SIP MESSAGE is associated with a group,
 - i) shall set the *<mcdata-calling-group-id>* element to the group identity;
- 6) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated to the MCDData user to be invited;
- 7) shall insert its own public service identity into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request;
- 8) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and
- 9) shall send the SIP MESSAGE request according to according to rules and procedures of 3GPP TS 24.229 [4]."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.4.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for controlling MCDData function", the IWF performing the controlling role:

...

2) if the SIP MESSAGE does not contain:

- a) an application/vnd.3gpp.mcdata-info+xml MIME body;
- b) an application/vnd.3gpp.mcdata-signalling MIME body; and
- c) an application/vnd.3gpp.mcdata-payload MIME body;

shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response, ..., and shall not continue with the rest of the steps in this clause;

3) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body contained in the SIP MESSAGE;

4) if the application/vnd.3gpp.mcdata-signalling MIME body contains a SDS SIGNALLING PAYLOAD message with a SDS disposition request type IE, shall store the value of the Conversation ID IE and the value of the Message ID IE in the SDS SIGNALLING PAYLOAD message;

NOTE: The IWF performing the controlling role uses the Conversation ID and Message ID for correlation with disposition notifications.

5) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP MESSAGE request is set to a value of "one-to-one-sds" and:

- a) the conditions in clause 11.1 indicate that the MCDData user is not allowed to send SDS communications due to message size as determined by step 3) of clause 11.1, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response to the SIP MESSAGE request, ..., and shall not continue with the rest of the steps in this clause; and
- b) the SIP MESSAGE request:
 - i) does not contain an application/resource-lists MIME body or contains an application/resource-lists MIME body with more than one <entry> element, shall return a SIP 403 (Forbidden) response ..., and skip the rest of the steps below; and
 - ii) contains an application/resource-lists MIME body with exactly one <entry> element, shall send a SIP MESSAGE request to the MCDData user identified in the <entry> element of the MIME body, as specified in clause 9.2.2.4.1, or if the MCDData user identified in the <entry> element of the MIME body indicates a user homed in the IWF, the processes used by IWF performing the controlling role to handle the incoming SIP MESSAGE request are out of scope;

...

7) shall generate a SIP 202 (Accepted) response in response to the "SIP MESSAGE request for standalone SDS for controlling MCDData function"; and

8) shall send the SIP 202 (Accepted) response towards the originating participating MCDData function according to 3GPP TS 24.229 [4]."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.2.1]

"The IWF shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

The IWF:

1) if a one-to-one standalone SDS message is to be sent, shall insert in the SIP MESSAGE request:

- a) an application/resource-lists+xml MIME body with the MCDData ID of the target MCDData user, according to rules and procedures of IETF RFC 4826 [89];

- b) an application/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-sds"; and
- c) if end-to-end security is required and the security context does not exist or if the existing security context has expired, an application/mikey MIME body with the MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [78]. The IWF:

- i) if necessary, shall determine keying material from the key management server;

NOTE: How the IWF obtains the keying material is out of scope of the present document.

- ii) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
- iii) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect one-to-one communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- iv) shall encrypt the PCK to a UID associated to the MCDData client using the MCDData ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [78];
- v) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- vi) shall add the MCDData ID associated with the originating user homed in the IWF to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
- vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating signing key determined by the IWF performing the role of an MCDData server provided in the keying material together with a time related parameter; and
- viii) shall include the MIKEY-SAKKE I_MESSAGE in an application/mikey MIME body as specified in 3GPP TS 33.180 [78];

...

- 3) shall generate a standalone SDS message as specified in clause 6.2.2.1."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.2.2.1]

"In order to generate an SDS message, the IWF performing the participating role:

- 1) shall generate an SDS SIGNALLING PAYLOAD message as specified in clause 15.1.2;
- 2) shall generate a DATA PAYLOAD message as specified in clause 15.1.4;
- 3) shall include in the SIP request, the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [82] clause E.1; and
- 4) shall include in the SIP request, the DATA PAYLOAD message in an application/vnd.3gpp.mcdata-payload MIME body as specified in 3GPP TS 24.282 [82] clause E.2.

When generating an SDS SIGNALLING PAYLOAD message as specified in clause 15.1.2, the IWF performing the participating role:

- 1) shall set the Date and time IE to the current time as specified in 3GPP TS 24.282 [82] clause 15.2.8;
- 2) if the SDS message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in clause 15.2.9;
- 3) if the SDS message continues an existing unfinished conversation, shall, if available, set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in clause 15.2.9, or shall set the Conversation ID IE to the Conversation ID value "UNKNOWN CONVERSATION" as specified in clause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in clause 15.2.10;

- 5) if the SDS message is in reply to a previously received SDS message shall include the InReplyTo message ID IE with the Message ID value:
 - i) set to the Message ID value in the previously received SDS message;
 - ii) set to the Message ID value "LMR MESSAGE ID" as specified in clause 15.2.10, with the value of octet 16 of the LMR MESSAGE ID set to the value of octet 16 of the Message ID in the previously received SDS message; and
 - iii) set to the Message ID value "UNKNOWN ORIGINATING MESSAGE ID" as specified in clause 15.2.10;
- 6) if the SDS message is for user consumption, shall not include an Application ID IE as specified in 3GPP TS 24.282 [82] clause 15.2.7 and shall not include an Extended application ID IE as specified in 3GPP TS 24.282 [82] clause 15.2.24;
- 7) if the SDS message is intended for an application on the terminating MCDData client, shall include:
 - a) an Application ID IE with a Application ID value representing the intended application as specified in 3GPP TS 24.282 [82] clause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in 3GPP TS 24.282 [82] clause 15.2.24;

NOTE: The value chosen for the Application ID value is decided by the mission critical organisation.

- 8) if only a delivery disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY" as specified in 3GPP TS 24.282 [82] clause 15.2.3;
- 9) if only a read disposition notification is required shall include a SDS disposition request type IE set to "READ" as specified in 3GPP TS 24.282 [82] clause 15.2.3; and
- 10) if both a delivery and read disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY AND READ" as specified in 3GPP TS 24.282 [82] clause 15.2.3.

When generating a DATA PAYLOAD message for SDS as specified in clause 15.1.4, the IWF performing the participating role:

- 1) shall set the Number of payloads IE to the number of Payload IEs that need to be encoded, as specified in clause 15.2.12;
- 2) if end-to-end security is required for a one-to-one communication, shall include the Security parameters and Payload IE with security parameters as described in 3GPP TS 33.180 [78]. Otherwise, if end-to-end security is not required for a one-to-one communication, shall include the Payload IE as specified in clause 15.1.4; and
- 3) for each Payload IE included:
 - a) if the payload is text, shall set the Payload content type as "TEXT" as specified in clause 15.2.13;
 - b) if the payload is binary data, shall set the Payload content type as "BINARY" as specified in clause 15.2.13;
 - c) if the payload is hyperlinks, shall set the Payload content type as "HYPERLINKS" as specified in clause 15.2.13;
 - d) if the payload is location, shall set the Payload content type as "LOCATION" as specified in clause 15.2.13;
 - e) if payload is enhanced status for a group, shall set the Payload content type as "ENHANCED STATUS" as specified in clause 15.2.13;
 - f) if payload is a native LMR message, shall set the Payload content type as "LMR MESSAGE" as specified in clause 15.2.13; and
 - g) shall include the data to be sent in the Payload data."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 12.2.2]

"When triggered by:

- receipt of a "SIP MESSAGE request for SDS disposition notification for MCDData server"; or
- the IWF determining that it shall send an SDS disposition notification

the IWF performing the MCDData controlling role:

1) if the IWF has received the SIP MESSAGE;

...

- d) shall attempt to correlate the disposition notification to the original SDS request using the values contained in the Conversation ID and Message ID of the SDS NOTIFICATION message contained in the application/vnd.3gpp.mcdata-signalling MIME body of the SIP MESSAGE; and
 - e) if unable to correlate the disposition notification as determined by step d), shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response ..., and shall not continue with the rest of the steps;
- 2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33];
- 3) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6] in the outgoing SIP MESSAGE request;
- 4) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with parameters "require" and "explicit" according to IETF RFC 3841 [6] in the outgoing SIP MESSAGE request;
- 5) shall set the Request-URI to the public service identity of the terminating participating MCDData function associated with the MCDData user to be invited ;

NOTE 1: How the IWF finds the public service identity of the terminating MCDData participating function is out of the scope of the present document.

- 6) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds";
 - 7) shall copy the MCDData ID of the MCDData user listed in the MIME resources body of the incoming SIP MESSAGE request, or the MCDData ID of the participant homed in the IWF, into the <mcdata-request-uri> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP MESSAGE request;
- ...
- 9) if an incoming SIP MESSAGE request contains an application/vnd.3gpp.mcdata-info+xml MIME body without an <mcdata-calling-group-id> element shall copy the application/vnd.3gpp.mcdata-signalling MIME body in the received SIP MESSAGE request to the outgoing SIP MESSAGE request;
- 10) when notifying other users:
- a) shall send the SIP MESSAGE request to those users homed in the MCDData system according to rules and procedures of 3GPP TS 24.229 [4]; and
- 11) when acknowledging the triggering event:
- a) shall generate a SIP 202 (Accepted) response in response to any
 - "SIP MESSAGE request for SDS disposition notification for MCDData server".

6.1.3 Test description

6.1.3.1 Pre-test conditions

System Simulator:

- SS (MCData Server)
 - SS (MCData Server) provides the participating MCData functions.
 - The SS (MCData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The SS (MCData Server) also consists of all sub-systems of the MCData Server, including the Media Storage Function, the MCData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.
- SS-UE1 (MCData client)
 - Simulated behind the SS (MCData Server).

IUT:

- IUT (IWF)
 - IUT (IWF) provides the controlling MCData function.
 - There is an IWF user homed in the IUT (IWF).

Preamble:

- The IUT (MCData Server) is connected to SS (MCData Server).
- The SS-UE1 (MCData client) is registered and authorized to use the MCData system.
- The <max-payload-size-sds-cplane-bytes> element shall not be present in the MCData Service Configuration document so that according to ETSI TS 124 484 [3] (3GPP TS 24.484) there is no size limit imposed for the use of C-plane procedures for the SDS message.

6.1.3.2 Test procedure sequence

Table 6.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCData Server) providing the originating participating MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY".	<--	SIP MESSAGE	-	-
2	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCData Server) providing the originating participating MCData function?	-->	SIP 202 (Accepted)	1	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED".	-	-	-	-
3	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED" to the SS (MCData Server) providing the terminating participating MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	1	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
4	The SS (MCData Server) providing the terminating participating MCData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
5	The SS (MCData Server) providing the originating participating MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "READ".	<--	SIP MESSAGE	-	-
6	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCData Server) providing the originating participating MCData function?	-->	SIP 202 (Accepted)	2	P
-	Make the IUT (IWF) send a disposition notification of "DISPOSITION PREVENTED BY THE SYSTEM".	-	-	-	-
7	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DISPOSITION PREVENTED BY THE SYSTEM" to the SS (MCData Server) providing the terminating participating MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	2	P
8	The SS (MCData Server) providing the terminating participating MCData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
9	The SS (MCData Server) providing the originating participating MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "READ".	<--	SIP MESSAGE	-	-
10	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCData Server) providing the originating participating MCData function?	-->	SIP 202 (Accepted)	3	P
-	Make the IUT (IWF) send a disposition notification of "READ".	-	-	-	-
11	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "READ" to the SS (MCData Server) providing the terminating participating MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	3	P
12	The SS (MCData Server) providing the terminating participating MCData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
13	The SS (MCData Server) providing the originating participating MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
14	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCData Server) providing the originating participating MCData function?	-->	SIP 202 (Accepted)	4	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED".	-	-	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
15	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED" to the SS (MCDData Server) providing the terminating participating MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	4	P
16	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
-	Make the IUT (IWF) send a disposition notification of "READ".	-	-	-	-
17	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "READ" to the SS (MCDData Server) providing the terminating participating MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	4	P
18	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
19	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
20	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	5	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED AND READ".	-	-	-	-
21	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED AND READ" to the SS (MCDData Server) providing the terminating participating MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	5	P
22	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY".	-	-	-	-
23	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY"?	-->	SIP MESSAGE	6	P
24	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
25	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
26	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	6	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "READ".	-	-	-	-
27	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "READ"?	-->	SIP MESSAGE	7	P
28	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
29	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
30	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	7	P
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ".	-	-	-	-
31	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ"?	-->	SIP MESSAGE	8	P
32	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
33	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
34	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	8	P
35	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
36	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	8	P
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ".	-	-	-	-
37	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ"?	-->	SIP MESSAGE	9	P

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
38	The SS (MCDData Server) providing the terminating participating MCDData function sends a SIP 200 (OK) response.	<--	SIP 200 (OK)	-	-
39	The SS (MCDData Server) providing the originating participating MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED AND READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
40	Check: Does the IUT (IWF) send a SIP 202 (Accepted) response to the SS (MCDData Server) providing the originating participating MCDData function?	-->	SIP 202 (Accepted)	9	P

6.1.3.3 Specific message contents

Table 6.1.3.3-1: SIP MESSAGE from the SS (MCDData Server) (Step 1, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-1

Table 6.1.3.3-2: SIP MESSAGE from the IUT (IWF) (Steps 3 and 15, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-7

Table 6.1.3.3-3: SIP MESSAGE from the SS (MCDData Server) (Steps 5 and 9, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-8

Table 6.1.3.3-4: SIP MESSAGE from the IUT (IWF) (Step 7, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.2-1, condition MCDATA_SDS, MCDATA_SIGNALLING				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS, providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF) providing the controlling MCDData function serving the MCDData user		
port	protected server port of the IWF			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).	ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.4.2	
Message-body				
MIME body part		MCDData Data signalling message		
MIME-part-body	MCDData Protected Payload Message containing SDS NOTIFICATION as described in Table 6.1.3.3-5			

Table 6.1.3.3-5: SDS NOTIFICATION (Table 6.1.3.3-4)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.8.4-1				
Information Element	Value/remark	Comment	Reference	Condition
SDS disposition notification type	'00000101'B	DISPOSITION PREVENTED BY SYSTEM	ETSI TS 124 282 [5] (3GPP TS 24.282) clause 15.2.5	

Table 6.1.3.3-6: SIP MESSAGE from the IUT (IWF) (Steps 11 and 17, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-11

Table 6.1.3.3-7: SIP MESSAGE from the SS (MCData Server) (Steps 13 and 19, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-12

Table 6.1.3.3-8: SIP MESSAGE from the IUT (IWF) (Step 21, Table 6.1.3.2-1)

Derivation Path: Table 5.2.1.3.3-15

Table 6.1.3.3-9: SIP MESSAGE from the IUT (IWF) (Step 23, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF) providing the controlling MCData function serving the MCData user		
port	protected server port of the IUT (IWF)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).	ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.4.2	

Table 6.1.3.3-10: SIP MESSAGE from the SS (MCDData Server) (Steps 25 and 33, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-6				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 6.1.3.3-11			

Table 6.1.3.3-11: MCDData-Info (Table 6.1.3.3-10)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-calling-user-id	Encrypted (note) <mcdData-calling-user-id> with mcdDataURI set to px_MCDData_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 6.1.3.3-12: SIP MESSAGE from the IUT (IWF) (Step 27, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF) providing the controlling MCDData function serving the MCDData user		
port	protected server port of the IUT (IWF)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).	ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.4.2	

Table 6.1.3.3-13: SIP MESSAGE from the SS (MCDData Server) (Steps 29 and 35, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-10				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 6.1.3.3-11			

Table 6.1.3.3-14: SIP MESSAGE from the IUT (IWF) (Steps 31 and 37, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-12				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF) providing the controlling MCData function serving the MCData user		
port	protected server port of the IUT (IWF)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the MCData Server which is simulated by the SS (MCData Server), providing terminating participating function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the IUT (IWF).	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.2	

Table 6.1.3.3-15: SIP MESSAGE from the SS (MCDData Server) (Step 39, Table 6.1.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-14				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.		
P-Asserted-Identity			RFC 3325 [32]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing originating participating function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 6.1.3.3-11			

6.2 IWF - MCDATA Server / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / IWF Participating role

6.2.1 Test Purpose (TP)

(1)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP MESSAGE message containing a one-to-one standalone SDS
with "DELIVERY" disposition to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 200 (OK) to SS (MCDATA Server) and sends a SIP MESSAGE
message containing the disposition notification "DELIVERED" to SS (MCDATA Server) }
}
```

(2)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP MESSAGE message containing a one-to-one standalone SDS
with "READ" disposition to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 200 (OK) to SS (MCDATA Server) and sends a SIP MESSAGE
message containing the disposition notification "DISPOSITION PREVENTED BY THE SYSTEM" to SS (MCDATA
Server) }
}
```

(3)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP MESSAGE message containing a one-to-one standalone SDS
with "READ" disposition to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 200 (OK) to SS (MCDATA Server) and sends a SIP MESSAGE
message containing the disposition notification "READ" to SS (MCDATA Server) }
}
```

(4)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP MESSAGE message containing a one-to-one standalone SDS
with "DELIVERY AND READ" disposition to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 200 (OK) to SS (MCDATA Server) and sends a SIP MESSAGE
message containing the disposition notification "DELIVERED" to SS (MCDATA Server) and sends a SIP
MESSAGE message containing the disposition notification "READ" to SS (MCDATA Server) }
}
```

(5)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { SS (MCDATA Server) forwards a SIP MESSAGE message containing a one-to-one standalone SDS
with "DELIVERY AND READ" disposition to IUT (IWF) }
  then { IUT (IWF) responds with a SIP 200 (OK) to SS (MCDATA Server) and sends a SIP MESSAGE
message containing the disposition notification "DELIVERED AND READ" to SS (MCDATA Server) }
}
```

(6)

```
with { IUT (IWF) connected to SS (MCDATA Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDATA Client)
with "DELIVERY" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY" disposition request to SS (MCDATA Server) and sends a SIP 200 (OK) after reception of SIP
MESSAGE message with disposition notification "DELIVERED" from SS (MCDATA Server) }
}
```

(7)

```

with { IUT (IWF) connected to SS (MCDData Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDData Client)
with "READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"READ" disposition request to SS (MCDData Server) and sends a SIP 200 (OK) after reception of SIP
MESSAGE message with disposition notification "READ" from SS (MCDData Server) }
}

```

(8)

```

with { IUT (IWF) connected to SS (MCDData Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDData Client)
with "DELIVERY AND READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY AND READ" disposition request to SS (MCDData Server) and sends a SIP 200 (OK) after
reception of SIP MESSAGE message with disposition notification "DELIVERED" from SS (MCDData Server)
and sends a SIP 200 (OK) after reception of SIP MESSAGE message with disposition notification "READ"
from SS (MCDData Server) }
}

```

(9)

```

with { IUT (IWF) connected to SS (MCDData Server) }
ensure that {
  when { IUT (User homed in the IWF) sends a one-to-one standalone SDS to SS-UE1 (MCDData Client)
with "DELIVERY AND READ" disposition request }
  then { IUT (IWF) sends a SIP MESSAGE message containing the one-to-one standalone SDS with
"DELIVERY AND READ" disposition request to SS (MCDData Server) and sends a SIP 200 (OK) after
reception of SIP MESSAGE message with disposition notification "DELIVERED AND READ" from SS (MCDData
Server) }
}

```

6.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: ETSI TS 129 582 [17] (3GPP TS 29.582), clauses 9.2.2.3.1, 9.2.2.3.2, 9.2.2.2.1, 9.2.2.2.2, 12.2.1.1, 12.2.1.2, 12.2.1.3, 6.2.2.1, 6.2.3.1, 6.2.4.1, 6.4 and 6.2.3.1, ETSI TS 124 282 [5] (3GPP TS 24.282), clauses 6.4. Unless otherwise stated, these are Rel-16 requirements.

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.3.1]

"If the IWF acting in a participating MCDData role determines that it needs to send an SDS message:

- 1) shall determine the MCDData ID of the originating user;
- 2) shall determine the public service identity of the controlling MCDData function associated with the requested SDS message:
 - a) if the SDS message to be sent is a group SDS message the public service identity is that of the controlling MCDData function associated with the MCDData group identity of the destination group; or
 - b) if the SDS message to be sent is a one-to-one SDS message the public service identity is that of the controlling MCDData function hosting the one-to-one standalone SDS service for the calling user;

NOTE 1: How the IWF determines the public service identity of the controlling MCDData function is out of scope of the present document.

- 3) if unable to identify the controlling MCDData function for standalone SDS shall complete any further actions to notify the user homed in the IWF, and shall not continue with any of the remaining steps;
- 4) shall ensure that the payload size of the message is not larger than a configured value compatible with the MCDData service;

NOTE 2: The term "payload size" refers to the "Length of Payload contents" of the payload IE of the DATA PAYLOAD message transported in the SIP MESSAGE request, minus 1 (to account for the added "Payload content type" field).

NOTE 3: The configured value for maximum payload size should not be larger than the value contained in the `<max-payload-size-sds-cplane-bytes>` element in the MCDData service configuration document as specified in 3GPP TS 24.484 [50]. How the IWF determines the value to configure is out of scope of the present document.

- 5) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33];
- 6) shall set the Request-URI of the outgoing SIP MESSAGE request to the public service identity of the controlling MCDData function as determined by step 2) in this clause;
- 7) shall include MIME bodies in to the outgoing SIP MESSAGE request according to clause 9.2.2.2.1;
- 8) shall include the MCDData ID of the originating user in the `<mcddata-calling-user-identity>` element of the `application/vnd.3gpp.mcddata-info+xml` MIME body of the outgoing SIP MESSAGE request;
- 9) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcddata.sds" (coded as specified in 3GPP TS 24.229 [4]), into the P-Asserted-Service header field of the outgoing SIP MESSAGE request;
- 10) shall set the P-Asserted-Identity in the outgoing SIP MESSAGE request to the public service identity of the IWF; and
- 11) shall send the SIP MESSAGE request as specified in 3GPP TS 24.229 [4].

Upon receipt of a SIP response in response to the SIP MESSAGE request in step 11) the IWF completes any further actions needed to handle the response – e.g. notify the user homed in the IWF."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.3.2]

"Upon receipt of a "SIP MESSAGE request for standalone SDS for terminating participating MCDData function", the IWF performing the participating role:

- 1) if unable to process the request due to a lack of resources or a risk of congestion exists, may reject the SIP MESSAGE request with a SIP 500 (Server Internal Error) response. The IWF may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [24] and skip the rest of the steps;
- 2) shall use the MCDData ID present in the `<mcddata-request-uri>` element of the `application/vnd.3gpp.mcddata-info+xml` MIME body of the incoming SIP MESSAGE request to identify the user homed in the IWF;
- 3) if the user homed in the IWF does not exist, then the participating IWF may reject the SIP MESSAGE request with a SIP 404 (Not Found) response, and shall skip the remaining steps;
- 4) if the SIP MESSAGE request contains an `application/mikey` MIME body containing a MIKEY-SAKKE I_MESSAGE and decryption of the content of the MIME body is to occur at the IWF, then the IWF:
 - a) shall extract the MCDData ID of the originating MCDData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
 - b) shall convert the MCDData ID to a UID as described in 3GPP TS 33.180 [78];
 - c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [78];
 - d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP MESSAGE request with a SIP 606 (Not Acceptable) response, and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in clause 4.7 and not continue with rest of the steps in this clause; and
 - e) if the signature of the MIKEY-SAKKE I_MESSAGE was successfully validated:
 - i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and
 - ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78]; and

NOTE: Any trans-encryption between the IWF and the user homed in the IWF is out of scope of the present document.

- 5) takes any further steps necessary to handle the message – e.g. notify the user homed in the IWF.

If the IWF determines that a SIP 200 (OK) response shall be sent on behalf of a user homed in the IWF in response to the SIP message request, the IWF shall send a SIP 200 (OK) response to the controlling MCDData function according to 3GPP TS 24.229 [4].

If the IWF determines that a SIP 4xx, 5xx or 6xx response shall be sent on behalf of a user homed in the IWF in response to the SIP message request, the IWF shall send said SIP 4xx, 5xx or 6xx response to the controlling MCDData function according to 3GPP TS 24.229 [4]:

- 1) shall determine which Warning header field(s) to place in the SIP response; and
- 2) shall send the SIP response to the controlling MCDData function according to 3GPP TS 24.229 [4]."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.2.1]

"The IWF shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

The IWF:

- 1) if a one-to-one standalone SDS message is to be sent, shall insert in the SIP MESSAGE request:
 - a) an application/resource-lists+xml MIME body with the MCDData ID of the target MCDData user, according to rules and procedures of IETF RFC 4826 [89];
 - b) an application/vnd.3gpp.mcddata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-sds"; and
 - c) if end-to-end security is required and the security context does not exist or if the existing security context has expired, an application/mikey MIME body with the MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [78]. The IWF:
 - i) if necessary, shall determine keying material from the key management server;

NOTE: How the IWF obtains the keying material is out of scope of the present document.

- ii) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];
- iii) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect one-to-one communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];
- iv) shall encrypt the PCK to a UID associated to the MCDData client using the MCDData ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [78];
- v) shall generate a MIKEY-SAKKE I_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];
- vi) shall add the MCDData ID associated with the originating user homed in the IWF to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [78];
- vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating signing key determined by the IWF performing the role of an MCDData server provided in the keying material together with a time related parameter; and
- viii) shall include the MIKEY-SAKKE I_MESSAGE in an application/mikey MIME body as specified in 3GPP TS 33.180 [78];

...

- 3) shall generate a standalone SDS message as specified in clause 6.2.2.1."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.2.2]

"Upon receipt of an SDS intended for a user homed in the IWF, the IWF processes the message according to the procedures in clause 9.2.2.3.2."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 12.2.1.1]

"If the IWF performing the MCDData participating role decides to send a disposition notification the IWF shall follow the procedures of clause 12.2.1.2.

Upon receipt of a SIP 202 (Accepted) response in response to the SIP MESSAGE request, the IWF:

- 1) *can perform internal actions to process the response.*

Upon receipt of a SIP 200 (OK) response in response to the SIP MESSAGE request, the IWF:

- 1) *can perform internal actions to process the response.*

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, the IWF:

- 1) *can perform internal actions to process the response."*

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 12.2.1.2]

"The IWF performing the participating role may follow the procedures in this clause to:

- *indicate to an MCDData client that an SDS message was delivered, read or delivered and read when the originating client requested a delivery, read or delivery and read report;*
- *indicate to the participating MCDData function serving the MCDData user that an SDS message was undelivered; or*
- *indicate to the participating MCDData function serving the MCDData user that disposition notification has been prevented for an SDS message intended for users homed in the LMR system.*

Before sending a disposition notification the IWF performing the participating role needs to determine:

- *the group identity related to an SDS message request received as part of a group communication. The IWF performing the participating role determines the group identity from the contents of the <mcddata-calling-group-id> element contained in the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SDS message request; and*
- *the MCDData user targeted for the disposition notification. The IWF performing the participating role determines the targeted MCDData user from the contents of the <mcddata-calling-user-id> element contained in the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SDS message request.*

The IWF performing the participating role generates a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the clarifications given below.

The IWF performing the participating role:

- 1) *shall build the SIP MESSAGE request as specified in clause 6.2.4.1;*
- 2) *shall follow the rules specified in clause 6.4 for the handling of MIME bodies in a SIP message when processing the remaining steps in this clause;*
- 3) *shall insert in the SIP MESSAGE request an application/resource-lists+xml MIME body containing the MCDData ID of the targeted MCDData user, according to rules and procedures of IETF RFC 5366 [20];*
- 4) *if sending a disposition notification in response to an MCDData group data request, shall include an <mcddata-calling-group-id> element set to the MCDData group identity in the application/vnd.3gpp.mcddata-info+xml MIME body;*
- 5) *if sending an SDS notification, shall generate an SDS NOTIFICATION message and include it in the SIP MESSAGE request as specified in clause 6.2.3.1; and*

- 6) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4]."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 12.2.1.3]

"Upon receipt of a:

- "SIP MESSAGE request for SDS disposition notification for terminating MCDData client ";

The IWF:

- 1) if unable to process the request due to a lack of resources or a risk of congestion exists, may reject the SIP MESSAGE request with a SIP 500 (Server Internal Error) response. The IWF may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [4] and skip the rest of the steps;
- 2) shall use the MCDData ID present in the <mcddata-request-uri> element of the application/vnd.3gpp.mcddata-info+xml MIME body of the incoming SIP MESSAGE request to identify the user homed in the IWF;
- 3) if the identity of the user homed in the IWF does not exist, then the participating IWF shall reject the SIP MESSAGE request with a SIP 404 (Not Found) response. Otherwise, continue with the rest of the steps; and
- 4) can perform internal actions to process the message.

If the IWF determines that a SIP 2xx response shall be sent on behalf of a user homed in the IWF in response to the SIP MESSAGE requests, the IWF shall send a SIP 2xx response to the controlling MCDData function.

If the IWF determines that a SIP 4xx, 5xx or 6xx response shall be sent on behalf of a user homed in the IWF in response to the SIP MESSAGE request, the IWF shall send the response to the controlling MCDData function."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.2.2.1]

"In order to generate an SDS message, the IWF performing the participating role:

- 1) shall generate an SDS SIGNALLING PAYLOAD message as specified in clause 15.1.2;
- 2) shall generate a DATA PAYLOAD message as specified in clause 15.1.4;
- 3) shall include in the SIP request, the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcddata-signalling MIME body as specified in 3GPP TS 24.282 [82] clause E.1; and
- 4) shall include in the SIP request, the DATA PAYLOAD message in an application/vnd.3gpp.mcddata-payload MIME body as specified in 3GPP TS 24.282 [82] clause E.2.

When generating an SDS SIGNALLING PAYLOAD message as specified in clause 15.1.2, the IWF performing the participating role:

- 1) shall set the Date and time IE to the current time as specified in 3GPP TS 24.282 [82] clause 15.2.8;
- 2) if the SDS message starts a new conversation, shall set the Conversation ID IE to a newly generated Conversation ID value as specified in clause 15.2.9;
- 3) if the SDS message continues an existing unfinished conversation, shall, if available, set the Conversation ID IE to the Conversation ID value of the existing conversation as specified in clause 15.2.9, or shall set the Conversation ID IE to the Conversation ID value "UNKNOWN CONVERSATION" as specified in clause 15.2.9;
- 4) shall set the Message ID IE to a newly generated Message ID value as specified in clause 15.2.10;
- 5) if the SDS message is in reply to a previously received SDS message shall include the InReplyTo message ID IE with the Message ID value:
 - i) set to the Message ID value in the previously received SDS message;
 - ii) set to the Message ID value "LMR MESSAGE ID" as specified in clause 15.2.10, with the value of octet 16 of the LMR MESSAGE ID set to the value of octet 16 of the Message ID in the previously received SDS message; and

- iii) set to the Message ID value "UNKNOWN ORIGINATING MESSAGE ID" as specified in clause 15.2.10;
- 6) if the SDS message is for user consumption, shall not include an Application ID IE as specified in 3GPP TS 24.282 [82] clause 15.2.7 and shall not include an Extended application ID IE as specified in 3GPP TS 24.282 [82] clause 15.2.24;
- 7) if the SDS message is intended for an application on the terminating MCDData client, shall include:
 - a) an Application ID IE with a Application ID value representing the intended application as specified in 3GPP TS 24.282 [82] clause 15.2.7; or
 - b) an Extended application ID IE with an Extended application ID value representing the intended application as specified in 3GPP TS 24.282 [82] clause 15.2.24;

NOTE: The value chosen for the Application ID value is decided by the mission critical organisation.

- 8) if only a delivery disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY" as specified in 3GPP TS 24.282 [82] clause 15.2.3;
- 9) if only a read disposition notification is required shall include a SDS disposition request type IE set to "READ" as specified in 3GPP TS 24.282 [82] clause 15.2.3; and
- 10) if both a delivery and read disposition notification is required shall include a SDS disposition request type IE set to "DELIVERY AND READ" as specified in 3GPP TS 24.282 [82] clause 15.2.3.

When generating a DATA PAYLOAD message for SDS as specified in clause 15.1.4, the IWF performing the participating role:

- 1) shall set the Number of payloads IE to the number of Payload IEs that need to be encoded, as specified in clause 15.2.12;
- 2) if end-to-end security is required for a one-to-one communication, shall include the Security parameters and Payload IE with security parameters as described in 3GPP TS 33.180 [78]. Otherwise, if end-to-end security is not required for a one-to-one communication, shall include the Payload IE as specified in clause 15.1.4; and
- 3) for each Payload IE included:
 - a) if the payload is text, shall set the Payload content type as "TEXT" as specified in clause 15.2.13;
 - b) if the payload is binary data, shall set the Payload content type as "BINARY" as specified in clause 15.2.13;
 - c) if the payload is hyperlinks, shall set the Payload content type as "HYPERLINKS" as specified in clause 15.2.13;
 - d) if the payload is location, shall set the Payload content type as "LOCATION" as specified in clause 15.2.13;
 - e) if payload is enhanced status for a group, shall set the Payload content type as "ENHANCED STATUS" as specified in clause 15.2.13;
 - f) if payload is a native LMR message, shall set the Payload content type as "LMR MESSAGE" as specified in clause 15.2.13; and
 - g) shall include the data to be sent in the Payload data."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.2.3.1]

"In order to generate an SDS notification, the IWF performing the participating role:

- 1) shall generate an SDS NOTIFICATION message as specified in clause 15.1.5; and
- 2) shall include in the SIP request, the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [82] clause E.1.

When generating an SDS NOTIFICATION message as specified in clause 15.1.5, the IWF performing the participating role:

- 1) if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED" as specified in 3GPP TS 24.282 [82] clause 15.2.5;
- 2) if sending a read notification, shall set the SDS disposition notification type IE as "READ" as specified in clause 3GPP TS 24.282 [82] 15.2.5;
- 3) if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ" as specified in 3GPP TS 24.282 [82] clause 15.2.5;
- 4) if the SDS message could not be delivered, shall set the SDS disposition notification type IE as "UNDELIVERED" as specified in 3GPP TS 24.282 [82] clause 15.2.5;
- 5) if SDS disposition notification was prevented by the LMR system, shall set the SDS disposition notification type IE as "DISPOSITION PREVENTED BY SYSTEM" as specified in 3GPP TS 24.282 [82] clause 15.2.5;
- 6) shall set the Date and time IE to the current time to as specified in 3GPP TS 24.282 [82] clause 15.2.8;
- 7) shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message as specified in clause 15.2.9;
- 8) shall set the Message ID to the value of the Message ID that was received in the SDS message as specified in clause 15.2.10;
- 9) if the SDS message was destined for the user, shall not include an Application ID IE (as specified in 3GPP TS 24.282 [82] clause 15.2.7) and shall not include an Extended application ID IE (as specified in 3GPP TS 24.282 [82] clause 15.2.24); and
- 10) if the SDS message was destined for an application, shall include:
 - a) an Application ID IE set to the value of the Application ID that was included in the SDS message as specified in 3GPP TS 24.282 [82] clause 15.2.3; or
 - b) an Extended application ID IE set to the value of the Extended application ID that was included in the SDS message as specified in 3GPP TS 24.282 [82] clause 15.2.24."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.2.4.1]

"This clause is referenced from other procedures.

In a SIP MESSAGE request, the IWF performing the participating role:

- 1) when sending SDS messages or SDS disposition notifications:
 - a) shall include an Accept-Contact header field containing the g.3gpp.mcdata.sds media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];
 - b) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6]; and
 - c) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;
- 2) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4]; and
- 3) shall set the Request-URI to the public service identity of the controlling MCDData function."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.4]

"The IWF shall support MIME bodies in SIP requests and SIP responses according to 3GPP TS 24.282 [82] clause 6.4."

[ETSI TS 129 582 [17] (3GPP TS 29.582), clause 6.2.3.1]

"In order to generate an SDS notification, the IWF performing the participating role:

- 1) *shall generate an SDS NOTIFICATION message as specified in clause 15.1.5; and*
- 2) *shall include in the SIP request, the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [82] clause E.1."*

[ETSI TS 124 282 [5] (3GPP TS 24.282), clause 6.4]

"The MCDData client and the MCDData server shall support several MIME bodies in SIP requests and SIP responses.

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

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

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

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

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

6.2.3 Test description

6.2.3.1 Pre-test conditions

System Simulator:

- SS (MCDData Server)
 - SS (MCDData Server) provides the controlling and participating MCDData functions.
 - The SS (MCDData Server) consists of all sub-systems of the Common Services Core, including the Group Management Server, the Configuration Management Server, the Key Management Server, the Identity Management Server, the HTTP Server, and the SIP AS. The SS (MCDData Server) also consists of all sub-systems of the MCDData Server, including the Media Storage Function, the MCDData User Database, the SIP AS, the HTTP Server, the HTTP Client, the MSRP TCP Server and the MSRP TCP Client.
- SS-UE1 (MCDData client)
 - Simulated behind the SS (MCDData Server).

IUT:

- IUT (IWF)
- IUT (IWF) provides the participating MCDData functions.
- There is an IWF user homed in the IUT (IWF).

Preamble:

- The IUT (MCDData Server) is connected to SS (MCDData Server).
- The SS-UE1 (MCDData client) is registered and authorized to use the MCDData system.
- The <max-payload-size-sds-cplane-bytes> element shall not be present in the MCDData Service Configuration document so that according to ETSI TS 124 484 [3] (3GPP TS 24.484) there is no size limit imposed for the use of C-plane procedures for the SDS message.

6.2.3.2 Test procedure sequence

Table 6.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY".	<--	SIP MESSAGE	-	-
2	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	1	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED".	-	-	-	-
3	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED" to the SS (MCDData Server) providing the controlling MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	1	P
4	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
5	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF), with disposition request "READ".	<--	SIP MESSAGE	-	-
6	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	2	P
-	Make the IUT (IWF) send a disposition notification of "DISPOSITION PREVENTED BY THE SYSTEM".	-	-	-	-
7	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DISPOSITION PREVENTED BY THE SYSTEM" to the SS (MCDData Server) providing the controlling MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	2	P
8	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
9	The SS (MCData Server) providing the controlling MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "READ".	<--	SIP MESSAGE	-	-
10	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCData Server) providing the controlling MCData function?	-->	SIP 200 (OK)	3	P
-	Make the IUT (IWF) send a disposition notification of "READ".	-	-	-	-
11	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "READ" to the SS (MCData Server) providing the controlling MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	3	P
12	The SS (MCData Server) providing the controlling MCData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
13	The SS (MCData Server) providing the controlling MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
14	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCData Server) providing the controlling MCData function?	-->	SIP 200 (OK)	4	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED".	-	-	-	-
15	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED" to the SS (MCData Server) providing the controlling MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	4	P
16	The SS (MCData Server) providing the controlling MCData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
-	Make the IUT (IWF) send a disposition notification of "READ".	-	-	-	-
17	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "READ" to the SS (MCData Server) providing the controlling MCData function, from the IUT (User homed in the IWF) to SS-UE1 (MCData Client)?	-->	SIP MESSAGE	4	P
18	The SS (MCData Server) providing the controlling MCData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
19	The SS (MCData Server) providing the controlling MCData function sends a SIP MESSAGE request to forward a standalone one-to-one SDS message from SS-UE1 (MCData Client) to the IUT (User homed in the IWF), with disposition request "DELIVERY AND READ".	<--	SIP MESSAGE	-	-
20	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCData Server) providing the controlling MCData function?	-->	SIP 200 (OK)	5	P
-	Make the IUT (IWF) send a disposition notification of "DELIVERED AND READ".	-	-	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
21	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a disposition notification of "DELIVERED AND READ" to the SS (MCDData Server) providing the controlling MCDData function, from the IUT (User homed in the IWF) to SS-UE1 (MCDData Client)?	-->	SIP MESSAGE	5	P
22	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY".	-	-	-	-
23	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY"?	-->	SIP MESSAGE	6	P
24	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
25	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
26	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	6	P
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "READ".	-	-	-	-
27	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "READ"?	-->	SIP MESSAGE	7	P
28	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
29	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
30	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	7	P
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ".	-	-	-	-
31	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ"?	-->	SIP MESSAGE	8	P
32	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
33	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
34	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	8	P
35	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a disposition notification of "READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
36	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	8	P
-	Make the IUT (IWF) send a standalone one-to-one SDS message to SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ".	-	-	-	-
37	Check: Does the IUT (IWF) send a SIP MESSAGE request to forward a standalone one-to-one SDS message from the user homed in the IWF to the SS-UE1 (MCDData Client), with disposition request "DELIVERY AND READ"?	-->	SIP MESSAGE	9	P
38	The SS (MCDData Server) providing the controlling MCDData function sends a SIP 202 (Accepted) response.	<--	SIP 202 (Accepted)	-	-
39	The SS (MCDData Server) providing the controlling MCDData function sends a SIP MESSAGE request to forward a disposition notification of "DELIVERED AND READ", from SS-UE1 (MCDData Client) to the IUT (User homed in the IWF).	<--	SIP MESSAGE	-	-
40	Check: Does the IUT (IWF) send a SIP 200 (OK) response to the SS (MCDData Server) providing the controlling MCDData function?	-->	SIP 200 (OK)	9	P

6.2.3.3 Specific message contents

Table 6.2.3.3-1: SIP MESSAGE from the SS (MCDData Server) (Step 1, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-3

Table 6.2.3.3-2: SIP MESSAGE from the IUT (IWF) (Steps 3 and 15, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-6

Table 6.2.3.3-3: SIP MESSAGE from the SS (MCDData Server) (Steps 5 and 9, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-11

Table 6.2.3.3-4: SIP MESSAGE from the IUT (IWF) (Step 7, Table 6.2.3.2-1)

Derivation Path: Table ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.2.7.1-1, condition MCDATA_SDS, RESOURCE_LISTS, MCDATA_SIGNALLING				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_B	The public service identity identifying the controlling MCDATA function serving the MCDATA user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF).		
port	protected server port of the IUT (IWF)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDATA Server which is simulated by the SS (MCDATA Server), providing controlling function.		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_A			
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_A	The URI of the IUT (IWF).	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.3.1	
Message-body				
MIME body part		Resource lists		
MIME-part-body	Resource-lists as described in Table 6.1.1.3.3-5			
MIME-part-body	MCDATA-Info as described in Table 5.2.1.3.3-6			
MIME body part		MCDATA Data signalling message		
MIME-part-body	MCDATA Protected Payload Message containing SDS NOTIFICATION as described in Table 6.1.3.3-5			

Table 6.2.3.3-5: SIP MESSAGE from the IUT (IWF) (Steps 11 and 17, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-14

Table 6.2.3.3-6: SIP MESSAGE from the SS (MCData Server) (Steps 13 and 19, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-19

Table 6.2.3.3-7: SIP MESSAGE from the IUT (IWF) (Step 21, Table 6.2.3.2-1)

Derivation Path: Table 5.2.2.3.3-22

Table 6.2.3.3-8: SIP MESSAGE from the IUT (IWF) (Step 23, Table 6.2.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_B	The public service identity identifying the controlling MCData function serving the MCData user		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the IUT (IWF)	Address of the IUT (IWF).		
port	protected server port of the IUT (IWF)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the IUT (IWF).		
To				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server. The URI of the MCData Server which is simulated by the SS (MCData Server), providing controlling function.		
Contact				
user-info and host	tsc_MCData_PublicServiceId_A			
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_A	The URI of the IUT (IWF).	ETSI TS 129 582 [17] (3GPP TS 29.582), clause 9.2.2.3.1	
Message-body				
MIME body part		Resource lists		
MIME-part-body	Resource-lists as described in Table 6.2.3.3-9			
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 6.2.3.3-10			
MIME body part		MCData Data signalling message		

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.2.3.3-1				
Information Element	Value/remark	Comment	Reference	Condition
MIME-part-body	MCDATA Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-3			
MIME body part		MCDATA Data message		
MIME-part-body	DATA PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-4			

Table 6.2.3.3-9: Resource lists (Table 6.2.3.3-8)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.3.1-3				
Information Element	Value/remark	Comment	Reference	Condition
resource-lists				
list				
name attribute				
display-name				
entry[1]				
uri attribute	px_MCDATA_ID_User_A	The MCDATA ID of the target MCDATA user		

Table 6.2.3.3-10: MCDATA-Info (Table 6.2.3.3-8)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3, condition MCD_1to1				
Information Element	Value/remark	Comment	Reference	Condition
mcddata-info				
mcddata-Params				
mcddata-calling-user-id	Encrypted (note) <mcddata-calling-user-id> with mcddataURI set to px_MCDATA_ID_User_B			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.1-3A.				

Table 6.2.3.3-11: SIP MESSAGE from the SS (MCData Server) (Steps 25 and 33, Table 6.2.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-5				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCData_PublicServiceId_A	The public service identity of the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCData Server)	Address of the MCData Server which is simulated by the SS (MCData Server), providing the controlling MCData function serving the MCData user		
port	protected server port of the SS (MCData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCData_PublicServiceId_B	The URI of the MCData Server which is simulated by the SS (MCData Server), providing the controlling function.		
To				
addr-spec	tsc_MCData_PublicServiceId_A	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCData_PublicServiceId_B	The URI of the MCData Server which is simulated by the SS (MCData Server), providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCData_PublicServiceId_B	The URI of the MCData Server which is simulated by the SS (MCData Server), providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	
Message-body				
MIME body part		MCData-Info		
MIME-part-body	MCData-Info as described in Table 6.2.3.3-12			

Table 6.2.3.3-12: MCDATA-Info (Table 6.2.3.3-11)

Derivation Path: ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.2-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdData-info				
mcdData-Params				
mcdData-request-uri	Encrypted <mcdData-request-uri> with mcdDataURI set to px_MCDATA_ID_User_B			
mcdData-calling-user-id	Encrypted <mcdData-calling-user-id> with mcdDataURI set to px_MCDATA_ID_User_A			
NOTE: Encrypted element as described in ETSI TS 136 579-1 [1] (3GPP TS 36.579-1), Table 5.5.3.2.2-3A.				

Table 6.2.3.3-13: SIP MESSAGE from the IUT (IWF) (Step 27, Table 6.2.3.2-1)

Derivation Path: 6.2.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME body part		MCDATA Data signalling message		
MIME-part-body	MCDATA Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-10			

Table 6.2.3.3-14: SIP MESSAGE from the SS (MCDData Server) (Steps 29 and 35, Table 6.2.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-11				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling MCDData function serving the MCDData user		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 6.2.3.3-12			

Table 6.2.3.3-15: SIP MESSAGE from the IUT (IWF) (Steps 31 and 37, Table 6.2.3.2-1)

Derivation Path: 6.2.3.3-8				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME body part		MCData Data signalling message		
MIME-part-body	MCData Protected Payload Message containing SDS SIGNALLING PAYLOAD as described in ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-14			

Table 6.2.3.3-16: SIP MESSAGE from the SS (MCDData Server) (Step 39, Table 8.2.3.2-1)

Derivation Path: ETSI TS 136 579-7 [6] (3GPP TS 36.579-7), Table 6.1.1.3.3-15				
Information Element	Value/remark	Comment	Reference	Condition
Request-Line			IETF RFC 3261 [7] IETF RFC 5031 [8]	
Request-URI	tsc_MCDData_PublicServiceId_A	The public service identity of the IUT (IWF).		
Via				
sent-protocol	"SIP/2.0/UDP"			
sent-by				
host	IP address of the SS (MCDData Server)	Address of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling MCDData function serving the MCDData user		
port	protected server port of the SS (MCDData Server)			
via-branch	Value starting with 'z9hG4bK'			
From				
addr-spec	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.		
To				
addr-spec	tsc_MCDData_PublicServiceId_A	The URI of the IUT (IWF).		
Contact				
user-info and host	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.		
P-Asserted-Identity			IETF RFC 3325 [13]	
name-addr	tsc_MCDData_PublicServiceId_B	The URI of the MCDData Server which is simulated by the SS (MCDData Server), providing the controlling function.	ETSI TS 124 282 [5] (3GPP TS 24.282), clause 9.2.2.4.1	
Message-body				
MIME body part		MCDData-Info		
MIME-part-body	MCDData-Info as described in Table 6.2.3.3-12			

Annex A (informative): Bibliography

- 3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- 3GPP TS 24.481: "Mission Critical Services (MCS) group management; Protocol specification".
- IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".
- IETF RFC 3840: "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".
- IETF RFC 3841: "Caller Preferences for the Session Initiation Protocol (SIP)".
- IETF RFC 3856: "A Presence Event Package for the Session Initiation Protocol (SIP)".
- IETF RFC 3903: "Session Initiation Protocol (SIP) Extension for Event State Publication".
- IETF RFC 4826: "Extensible Markup Language (XML) Formats for Representing Resource Lists".
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- IETF RFC 6714: "Connection Establishment for Media Anchoring (CEMA) for the Message Session Relay Protocol (MSRP)".

History

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