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TECHNICAL SPECIFICATION

LTE;
Mission Critical (MC) services over LTE;
Part 7: Mission Critical Data (MCData) User Equipment (UE)
Protocol conformance specification
(3GPP TS 36.579-7 version 14.0.0 Release 14)

Reference

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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

Contents

Foreword

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

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

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

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

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

In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do something

shall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not   indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is   (or any other verb in the indicative mood) indicates a statement of fact

is not   (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

Introduction

The present document is part 7 of a multi-part deliverable covering conformance test specification for Mission Critical Services over LTE consisting of:

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

3GPP TS 36.579-2 [24]: " Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification";

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

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

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

3GPP TS 36.579-6 [25]: " Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification";

3GPP TS 36.579-7: " Mission Critical (MC) services over LTE; Part 7: Mission Critical Data (MCData) User Equipment (UE) Protocol conformance specification" (the present document).

1   Scope

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

In particular the present document contains:

- the overall test structure;

- the test configurations;

- the conformance requirement and reference to the core specifications;

- the test purposes; and

- a brief description of the test procedure, the specific test requirements and short message exchange table.

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

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

- default setting of the test parameters TS 36.579-1 [2];

- Implementation Conformance Statement (ICS) TS 36.579-4 [4] and Implementation eXtra Information for Testing (IXIT) TS 36.579-5 [5];

- the applicability of each test case TS 36.579-4 [4].

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

According to 3GPP drafting rules, the references clause shall list only documents that are explicitly mentioned in the deliverable. This reference is not used within the document and thus shall be removed from references clause.

2   References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

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

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

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

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

[6] 3GPP TS 36.523-1: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part 1: Protocol conformance specification".

[7] Void

[8] Void

[9] 3GPP TS 24.379: "Mission Critical Push To Talk (MCPTT) call control; Protocol specification".

[10] Void

[11] 3GPP TS 24.481: "Mission Critical Services (MCS) group management; Protocol specification".

[12] 3GPP TS 24.482: "Mission Critical Services (MCS) identity management; Protocol specification".

[13] 3GPP TS 24.483: "Mission Critical Services (MCS) Management Object (MO)".

[14] 3GPP TS 24.484: "Mission Critical Services (MCS) configuration management; Protocol specification".

[15] 3GPP TS 33.179: " Security of Mission Critical Push To Talk (MCPTT) over LTE ".

[16] 3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[17] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[18] Void

[19] 3GPP TS 36.509: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Special conformance testing functions for User Equipment (UE)".

[20] 3GPP TS 36.508: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Common Test Environments for User Equipment (UE) Conformance Testing".

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

[22] 3GPP TS 33.310: "Network Domain Security (NDS); Authentication Framework (AF)".

[23] Void

[24] 3GPP TS 36.579-2: "Mission Critical (MC) services over LTE; Part 2: Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol conformance specification".

[25] 3GPP TS 36.579-6: "Mission Critical (MC) services over LTE; Part 6: Mission Critical Video (MCVideo) User Equipment (UE) Protocol conformance specification ".

[26] Void

[27] Void

[28] Void

[29] Void

[30] 3GPP TS 33.180: "Security of the mission critical service".

[31] 3GPP TS 24.282: "Mission Critical Data (MCData) signalling control; Protocol specification".

[32] 3GPP TS 24.582: "Mission Critical Data (MCData) media plane control; Protocol specification".

[33]   3GPP TS 23.282: "Functional architecture and information flows to support Mission Critical Data (MCData); Stage 2".

[34]   3GPP TS 22.282: "Mission Critical Data over LTE. Status: Under change control".

[35]   Void

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

[37]   IETF RFC 4122 (July 2005): "A Universally Unique IDentifier (UUID) URN Namespace".

3   Definitions of terms, symbols and abbreviations

3.1   Terms

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

For the purpose of the present document, the following terms given in TS 23.282 [33] apply:

Auto-receive
Conversation identifier
Data stream
FD disposition
MCData client
MCData group
MCData group affiliation
MCData group communication
MCData group de-affiliation
MCData ID
MCData server
MCData service
MCData UE
MCData 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 TS 22.282 [34] apply:

Conversation
Conversation ID
MCData Conversation Hang Time
MCData System

For the purpose of the present document, the following terms given in 3GPP TS 33.180 [30] apply:

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

3.2 Symbols

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

None.

3.3 Abbreviations

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

CSK	Client-Server Key
DS	Data Streaming
ECGI	E-UTRAN Cell Global Identification
FD	File Distribution
FFS	For Further Study
ICS	Implementation Conformance Statement
IOPS	Isolated E-UTRAN Operation for Public Safety
IUT	Implementation Under Test
IXIT	Implementation eXtra Information for Testing
MBMS	Multimedia Broadcast and Multicast Service
MBSFN	Multimedia Broadcast multicast service Single Frequency Network
MC	Mission Critical
MCData	Mission Critical Data
MCData group ID	MCData group Identity
MCPTT	Mission Critical Push To Talk
MCS	Mission Critical Service
MCVideo	Mission Critical Video
MDEA	MCData Emergency Alert
MIME	Multipurpose Internet Mail Extensions
MONP	MC service Off-Network Protocol
NAT	Network Address Translation
PCC	Policy and Charging Control
PCCB	Private Call Call-Back
PCRF	Policy and Charging Rules Function
PLMN	Public Land Mobile Network
QCI	QoS Class Identifier
RTP	Real-time Transport Protocol
SAI	Service Area Identifier
SDP	Session Description Protocol
SDS	Short Data Service
SIP	Session Initiation Protocol
SPK	Signalling Protection Key
SS	System Simulator
SSRC	Synchronization SouRCe
TGI	Temporary MCVideo Group Identity
TMGI	Temporary Mobile Group Identity
TP	Transmission Point
TP	Test Purpose
UE	User Equipment
UM	Unacknowledged Mode
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 MCData Client.

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

4.1.2 Test interfaces and facilities

Detailed descriptions of the MCData

Client test interfaces and special facilities for testing are provided in 3GPP TS 36.509 [19].

4.2 Implicit testing

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

4.3 Repetition of tests

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

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

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

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

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

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

4.5 Reference conditions

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

4.6 Generic setup procedures

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

5 MCData Client Configuration

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

5.1.1 Test Purpose (TP)

(1)

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

(2)

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

(3)

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

(4)

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

(5)

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

(6)

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

5.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.482 clause 6.2.1 and Annex A.2.1.2, TS 24.484 clauses 4.2.1, 4.2.2.1, 6.2.2, 6.3.1.1, 6.3.2.1, 6.3.2.2, 6.3.3.2.1, 6.3.3.2.2, 6.3.13.2.1 and 6.3.13.2.2, TS 24.481 clauses 6.2.2.2, 6.2.3, 6.3.3.2.1, 6.3.3.2.2 and 6.3.13.2.1, TS 24.282 clauses 7.2.1, 7.2.1A, 7.2.2 and 7.2.3, TS 33.180 clauses 5.1.3.1, 5.3.3, 6.1.2, and Annex D. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated these are Rel-14 requirements.

[TS 24.482, clause 6.2.1]

Upon an indication from the MC service client to initiate MC service user authentication, the IdM client shall perform the user authentication procedure according to 3GPP TS 33.180 [17] with the following clarifications:

1) shall establish a TLS tunnel to the authorisation endpoint of the IdM server as specified in 3GPP TS 33.180 [17] using the configured URL of the authorisation endpoint of the IdM server as specified in the "/<x>/OnNetwork/AppServerInfo/IDMSAuthEndpoint" leaf node defined in 3GPP TS 24.483 [11] and the clarifications in annex A;

2) shall generate an OIDC Authentication Request message as specified in the OpenID Connect 1.0 [6] and IETF RFC 6749 [5] with the following clarifications:

   a) shall generate an HTTP GET request method according to IETF RFC 2616 [4];

   b) shall include the configured parameter IdM client id as the client_id parameter specified in 3GPP TS 33.180 [17] in the query component of the authorization endpoint's URI using the "application/x-www-form-urlencoded" format as specified in W3C.REC-html401-19991224 [7]; and

   NOTE 1: The configuration of client_id is specified in 3GPP TS 24.483 [11].

   c) shall include the remaining required parameters as specified in 3GPP TS 33.180 [17] in the query component of the authorization endpoint's URI using the "application/x-www-form-urlencoded" format as specified in W3C.REC-html401-19991224 [7]; and

3) shall send the HTTP GET request method towards the IdM server.

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

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

1) shall prompt the MC service user for their username and password;

NOTE 3: Other types of authentication are supported and are not defined by the OIDC specifications. 3GPP TS 33.180 [17] has defined username and password as a mandatory authentication method to be supported, hence a procedure to realize that method is included here.

2) shall generate an HTTP POST request method containing the MC service user's username and password; and

3) shall send the HTTP POST request method towards the IdM server.

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

1) shall establish a TLS tunnel to the token endpoint of the IdM server as specified in 3GPP TS 33.180 [17] using the configured URL of the token endpoint of the IdM server as specified in the "/<x>/OnNetwork/AppServerInfo/IDMSTokenEndpoint" leaf node defined in 3GPP TS 24.483 [11] and the clarifications in annex A;

2) shall generate an OIDC Token Request message as specified in OpenID Connect 1.0 [6] and IETF RFC 6749 [5] with the following clarifications:

   a) shall generate an HTTP POST request method according to IETF RFC 2616 [4]; and

    b) shall include the grant_type parameter set to a value of "authorization_code" and the other required parameters in the entity body of the HTTP POST request method using the using the "application/x-www-form-urlencoded" format as specified in 3GPP TS 33.180 [17]; and

    3) shall send the HTTP POST request method towards the IdM server.

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

    1) shall validate the id_token, access_token and refresh token in the received OIDC Token Response message as specified in the OpenID Connect 1.0 [6] specification; and

    2) shall provide the id_token and access_token in the received OIDC Token Response message to the MC service client.

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

The MC UE may repeat the entire procedure in this clause as needed to obtain the necessary authorisation tokens for the MC service clients, depending on the scope parameter in the Authentication Request message as specified in 3GPP TS 33.180 [17].

[TS 24.482, Annex A.2.1.2]

The HTTP client in the UE shall support the client role defined in IETF RFC 2818 [10].

The HTTP client in the UE shall support transport layer security (TLS) as specified in 3GPP TS 33.180 [17].

The HTTP client in the UE is configured with the following parameters:

    1) a home HTTP proxy FQDN;

    2) a home HTTP proxy port;

    3) a TLS tunnel authentication method. The TLS tunnel authentication method parameter is set to one of the following:

        a) one-way authentication of the HTTP proxy based on the server certificate;

        b) mutual authentication based on certificates; and

        c) mutual authentication based on pre-shared key;

    as specified in 3GPP TS 33.180 [17];

    4) if the TLS tunnel authentication method is the mutual authentication based on certificates:

        a) TLS tunnel authentication X.509 certificate; and

    5) if the TLS tunnel authentication method is the mutual authentication based on pre-shared key;

        a) TLS tunnel authentication pre-shared key.

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

The HTTP client in the UE shall establish a TLS tunnel via the TCP connection as specified in 3GPP TS 33.180 [17]. When establishing the TLS tunnel, the HTTP client in the UE shall act as a TLS client and the UE shall perform the TLS tunnel authentication using the TLS authentication method indicated by the TLS tunnel authentication method parameter according to 3GPP TS 33.180 [17]. The UE shall use the configured TLS tunnel authentication X.509 certificate and the configured TLS tunnel authentication pre-shared key when applicable for the used TLS authentication method. In order to prevent man-in-the-middle attacks, the HTTP client in the UE shall check the home HTTP proxy FQDN against the server's identity as presented in the received server's certificate message if the TCP connection terminates on the HTTP proxy. The HTTP client in the UE shall not check the portion of dereferenced HTTP URL against the server's identity as presented in the received server's certificate message if the TCP connection terminates on the HTTP proxy, but shall do so if the TCP connection terminates on the IdM server.

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

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

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

[TS 33.180, Annex D.1]

This annex specifies the key management procedures between the KMS and the key management client that allows keys to be provisioned to the key management client based on an identity. It describes the requests and responses for the authorization following provisioning messages:

- KMS Initialize.

- KMS KeyProvision.

- KMS CertCache.

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

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

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

[TS 33.180, clause 5.1.3.1]

This clause expands on the MCX user service authorization step shown in figure 5.1.1-1 step C.

MCX User Service Authorization is the function that validates whether or not a MCX user has the authority to access certain MCX services. In order to gain access to MCX services, the MCX client in the UE presents an access token (acquired during user authentication as described in subclause 5.1.2) to each service of interest (i.e. Key Management, MCX server, Configuration Management, Group Management, etc.). If the access token is valid, then the user is granted the use of that service. Figure 5.1.3.1-1 shows the flow for user authorization which covers key management authorization, MCX user service authorization, configuration management authorization, and group management authorization.

NOTE: All HTTP traffic between the UE and HTTP proxy, and all HTTP traffic between the UE and KMS (if not going through the HTTP proxy) is protected using HTTPS.

For key management authorization, the KM client in the UE presents an access token to the KMS over HTTP. The KMS validates the access token and if successful, provides one or more sets of user specific key material back to the UE KM client based on the MC service ID(s) present in the access token (MCPTT ID, MCVideo ID and/or MCData ID). User specific key material includes identity based key information for media and signalling protection. This key management authorisation may be repeated for each KM service the user is authorised to use (MCPTT, MCVideo, MCData).

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

For MCVideo service authorization, the MCVideo client in the UE presents an access token to the MCVideo server over SIP. The MCVideo server validates the access token and if successful, authorizes the user for full MCVideo services and sends an acknowledgement back to the MCVideo client. The MCVideo server then maps and maintains the

IMPU to MCVideo ID association. The MCVideo ID to IMPU association shall only be known to the application layer. The SIP message used to convey the access token from the MCVideo client to the MCVideo server may be either a SIP REGISTER or SIP PUBLISH message.

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

The UE can now perform configuration management authorization and download the user profile for the service(s) (MCPTT, MCVideo, MCData). Following the flow described in subclause 10.1.4.3 of 3GPP TS 23.280 [36] " MC service user obtains the MC service user profile(s) from the network ", the Configuration Management (CM) client in the UE sends an access token in the user profile query to the Configuration Management server over HTTP. The CM server receives the request and validates the access token, and if valid, the CM server uses the identity from the access token (MCPTT ID, MCVideo ID, MCData ID) to obtain the user profile from the MCX user database. The CM server then sends the user profile back to the CM client over HTTP. This configuration management authorisation may be repeated for each CM service the user is authorised to use (MCPTT, MCVideo, MCData).

Upon receiving each user profile, the Group Management (GM) client in the UE can now perform group management authorization. The GM client obtains the user's group membership information from the user profile, and following the flow shown in clause 10.1.5.2 of 3GPP TS 23.280 [36] "Retrieve group configurations at the group management client", the Group Management (GM) client in the UE sends an access token in the Get group configuration request to the host GM server of the group membership over HTTP. The GM server validates the access token, and if valid, completes the flow. As part of group management authorization, group key information is provided as per subclause 5.7 of the present document. This group management authorisation may be repeated for each GM service the user is authorised to use (MCPTT, MCVideo, MCData).
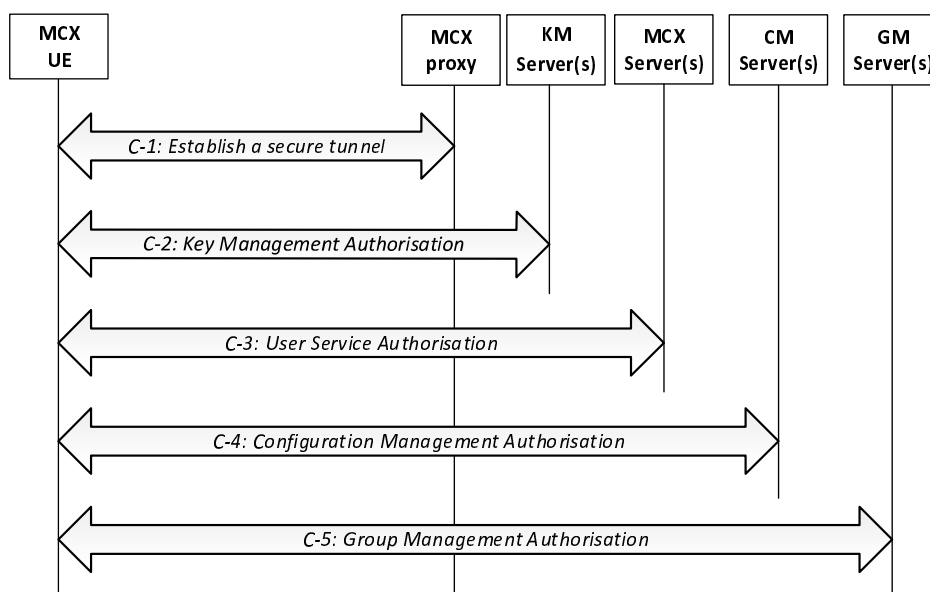
Figure 5.1.3.1-1: MCX user service authorization

The user authorization procedure in Step C of Figure 5.1.1-1 is further detailed into 5 sub steps that comprise the MCX user service authorization process:

Step C-1:   If not already done, establish a secure HTTP tunnel using HTTPS between the MCX UE and MCX proxy server. Subsequent HTTP messaging makes use of this tunnel (with the possible exception of the KMS client to KMS server interface).

Step C-2: The KMS client in the UE presents an access token to the KMS over HTTP. The KMS authorizes the user for key management services based upon the MC service ID(s) provided and replies to the client with identity specific key information. This step may be repeated to authorise the user with additional KM services (MCPTT, MCVideo, MCData) as necessary.

Step C-3: The MCX client in the UE presents an access token to the MCX server over SIP as defined in clause 5.1.3.2 of the present document. This step may be repeated to authorise the user with additional MCX services (MCPTT, MCVideo, MCData) as necessary.

Step C-4: The CM client in the UE follows the "MCX user obtains the user profile (UE initiated)" flow from clause 10.1.4.3 of 3GPP TS 23.280 [36], presenting an access token in the Get MCX user profile request over HTTP. If the token is valid, then the CM server authorizes the user for configuration management services. Completion of this step results in the CM server providing the user's profile to the CM client. This step may be repeated as necessary to obtain the user profile for additional services (MCPTT, MCVideo, or MCData).

Step C-5: The GM client in the UE follows the "Retrieve group configurations at the group management client" flow as shown in clause 10.1.5.2 of 3GPP TS 23.280 [36], presenting an access token in the Get group configuration request over HTTP. If the token is valid, the GMS authorizes the user for group management services. Completion of this step results in the GMS sending the user's group policy information and group key information to the GM client. This step may be repeated to authorise the user for additional group services (MCPTT, MCVideo, MCData) as necessary.

[TS 33.180, clause 5.3.3]

The procedure for the provision of identity-specific key material when the HTTP proxy is supported between the KMS and the KMS client is described in figure 5.3.3-1. The procedure is the same whether the key management client in the MC UE, an MCX Server or a Group Management Server is making the request.
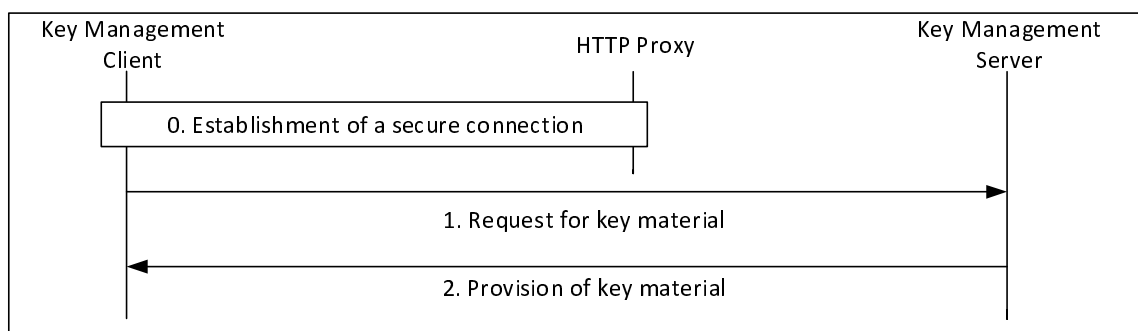
Figure 5.3.3-1: Provisioning of key material via the HTTP proxy

The procedure in figure 5.3.3-1 is now described step-by-step.

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

NOTE: Additionally, the connection between the KMS and the HTTP Proxy is secured according to clause 6.1.

1) The key management client makes a request for user key material from the KMS. The request contains an access token to authenticate the user as defined in clause 5.1. There are three types of request (as defined in Annex D):

    a) KMSInit Request. This request is the first request sent to the KMS to setup the user.

    b) KMSKeyProv Request: This request is to obtain new key material from the KMS. The request may contain details of a specific identity (e.g. MCPTT ID) required for key management, and may contain a specific time for which the key material is required.

   c) KMSCertCache Request: This request is to obtain external KMS certificates associated with external security domains (managed by another KMS). The request may contain details of the latest version of the cache received by the client.

2) The KMS provides a response based upon the authenticated user and the user's request. For public safety use, the key material itself shall be encrypted using a 256-bit transport key (TrK). The response may also be signed by the TrK or the InK. The TrK and InK are initially distributed via an out-of-band mechanism along with their 32-bit identifiers, the TrK-ID and InK-ID, respectively. The responses are:

   a) KMSInit Response. This response contains domain parameters and optionally, a new TrK and/or a new InK.

   b) KMSKeyProv Response: This response provides new key material to the user and optionally, a new TrK.

   c) KMSCertCache Response: This response contains new or updated home KMS certificates and/or external KMS certificates required by the user for communications with external security domains.

The procedure for the provisioning of identity-specific key material when the HTTP proxy is not used between the KMS and the KMS client is as described in Figure 5.3.3-2.
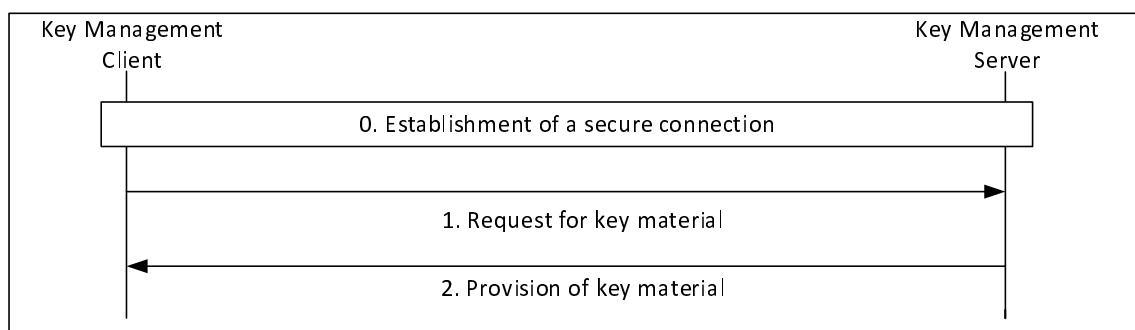
Figure 5.3.3-2: Provisioning of key material without a proxy

The procedure in Figure 5.3.3-2 is now described step-by-step:

0) The key management client establishes a direct HTTPS connection to the KMS. The following message flow is within this secure connection.

1) The key management client makes a request to the KMS. The same requests can be made as defined above with a proxy.

2) The KMS provides a response based upon the authenticated user and the user's request. Optionally, the key material itself may also be encrypted using a 256-bit transport key (TrK). The response may also be signed using the TrK or the InK. The TrK and InK are initially distributed via an out-of-band mechanism along with their 32-bit identifiers (TrK-ID and InK-ID respectively).

As a result of this procedure, the key management client has securely obtained key material for use within the MC system.

[TS 24.484, clause 4.2.1]

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

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

1. the online configuration management server in the network that configures the MCS UE initial configuration MO and the default MCS user profile configuration MO(s), then the MC UE:

   a) using the URI of the configuration management server obtained from the MCS UE initial configuration MO, obtains for each MCS that is enabled:

   - the appropriateMCS UE configuration document;

   - the appropriateMCS user profile configuration document; and

   - the appropriateMC service configuration document; and

   b) using the URI of the group management server obtained from the MCS UE initial configuration MO obtain the MCS group document; or

2. the:

   a) offline configuration management server on the external device that configures the MC UE with the:

   - MCS UE initial configuration MO;

   - appropriate MCS UE configuration MO(s);

   - appropriate MCS user profile MO(s); and

   - appropriate MCS service configuration MO(s); and

   b) offline group management server on the external device that configures the MC UE with the MCS group MO.

The mechanism to discover the online or offline configuration management server is dependent on the protocol used to manage and configure the MO and is out of scope of the present document.

[TS 24.484, clause 4.2.2.1]

The format of the MCS UE initial configuration MO downloaded to the MC UE during online configuration is defined in 3GPP TS 24.483 [4].

The format of the MCS group document downloaded to the MC UE during online configuration is defined in 3GPP TS 24.481 [5].

Figure 4.2.2-1 shows the MCPTT UE online configuration time sequence.
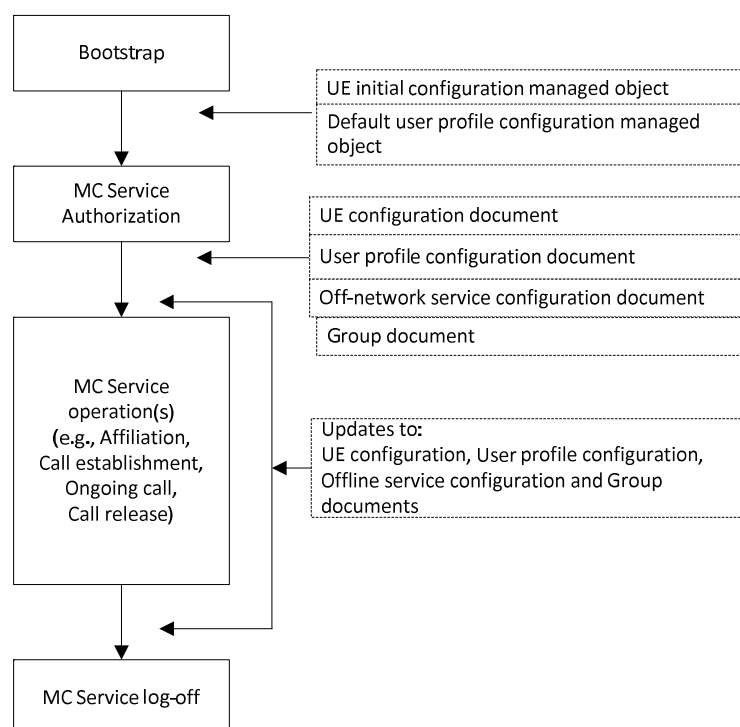
Figure 4.2.2-1 MC UE online configuration time sequence

If the MCS UE initial configuration MO has changed from the version stored in the MC UE, the updated MC UE initial configuration MO is downloaded to the MCPTT UE.

If the MCS UE initial configuration MO contains a <default-user-profile> element and the identified default MCS user profile configuration MO(s) have changed from the version stored in the MC UE, the updated default MCS user profile configuration MO(s) are downloaded to the MC UE.

> NOTE 1: The default MCS user profile configuration MO(s) define the default identity(s) for the enabled mission critical service(s) and the profile of services available to the user (e.g. emergency MCPTT services) prior to user authentication.

The MC UE contacts the identity management server using the HTTPS URI stored in the MCS UE initial configuration MO and performs MC User authentication as specified in 3GPP TS 24.482 [6].

The MC UE, using the identities obtained during MC user authentication, subscribes to the MCS UE configuration document, the MCS user profile configuration document and the MCS service configuration document for each enabled MCS using the procedure for subscribing to multiple documents simultaneously using the subscription proxy function specified in subclause 6.3.13.2.2(i.e., the CMS acts as a Subscription Proxy) and subscribes to the MCS group document using the procedure specified in 3GPP TS 24.481 [5]. If these documents have been updated since the current version stored in the MC UE, then the MC UE will receive a SIP NOTIFY request with an XCAP Diff document (see IETF RFC 5875 [11]), in which case the CMC updates its local document copies . Retrieval by the MC UE using the notified HTTPS URI of the MCS group document is performed as specified in 3GPP TS 24.481 [5].

> NOTE 2: The MC UE can be notified of changes to an configuration documents at any time while using the MCS.

[TS 24.484, clause 6.2.2]

The CMC shall send the HTTP request over TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [6].

[TS 24.484, clause 6.3.1.1]

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

[TS 24.484, clause 6.3.3.2.1]

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

[TS 24.484, clause 6.3.3.2.2]

In order to retrieve a configuration management document, a CMC shall perform the procedures in subclause 6.3.3.2.1 specified for GC. The CMC shall set the Request-URI of the HTTP GET request to the "CMSXCAPRootURI" configured as per 3GPP TS 24.483 [4] and include the "auid" as per the appropriate application usage in clause 7.

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

[TS 24.484, clause 6.3.13.2.1]

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

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

[TS 24.484, clause 6.3.13.2.2]

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

…

b) if subscription to multiple documents simultaneously using the subscription proxy function is used:

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

A) with the base URI being equal to the "CMSXCAPRootURI" configured in the CMC as per 3GPP TS 24.483 [4]; and

B) with the "auid" parameter set to the appropriate application usage identifying a configuration management document;

2) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the CMS;

c) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the value of the access token received during authentication procedure as described in 3GPP TS 24.482 [6];

d) if identity hiding is required:

1) shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [9] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body; and

2) shall include an application/mikey MIME body with the CSK as specified in 3GPP TS 24.379 [9];

e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [22]), in a P-Preferred-Service header field according to IETF RFC 6050 [23]; and

f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

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

1) if identity hiding is required, the CMC shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [9] for MC client; and

2) shall handle the SIP NOTIFY request according to IETF RFC 5875 [11].

In order to re-subscribe to notification of changes of a modified list of one or more configuration management documents; a CMC shall send a SIP re-SUBSCRIBE request to the network according to the UE originating procedures specified in 3GPP TS 24.229 [22] and IETF RFC 5875 [11]. In the SIP re-SUBSCRIBE request, the CMC:

a) if direct subscription is used, shall set the Request URI to a SIP URI containing:

1) the base URI being equal to the "CMSXCAPRootURI" configured in the CMC as per 3GPP TS 24.483 [4]; and

2) the "auid" parameter set to the appropriate application usage identifying a configuration management document as described in clause 7;

b) if subscription to multiple documents simultaneously using the subscription proxy function is used:

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

A) with the base URI being equal to the "CMSXCAPRootURI" configured in the CMC as per 3GPP TS 24.483 [4]; and

B) with the "auid" parameter set to the appropriate application usage identifying a configuration management document as described in clause 7;

c) if identity hiding is required, shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [9] for MC client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body using the CSK included in the initial SIP SUBSCRIBE request; and

d) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

[TS 24.481, clauses 6.2.2.2]

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

[TS 24.481, clauses 6.2.3]

The GMC shall send the HTTP request over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [10].

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

[TS 24.481, clauses 6.3.3.2.1]

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

[TS 24.481, clauses 6.3.3.2.2]

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

[TS 24.481, clauses 6.3.13.2.1]

In order to subscribe to notification of changes of:

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

…

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

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

1) contains a relative path reference:

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

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

...

b) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the GMS;

c) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the value of the access token received during authentication procedure as described in 3GPP TS 24.482 [49];

d) if identity hiding is required:

1) shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body; and

    2) shall include an application/mikey MIME body with the CSK as specified in 3GPP TS 24.379 [5];

  e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Preferred-Service header field according to IETF RFC 6050 [14]; and

  f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

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

  1) if identity hiding is required, the GMC shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client; and

  2) shall handle the SIP NOTIFY request according to IETF RFC 5875 [13].

[TS 24.282, clause 7.2.1]

When the MCData client performs SIP registration for service authorisation the MCData client shall perform the registration procedures as specified in 3GPP TS 24.229 [5].

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

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

  2) if SDS is supported then:

    a) the g.3gpp.mcdata.sds media feature tag; and

    b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"; and

  3) if FD service is supported then:

    a) the g.3gpp.mcdata.fd media feature tag; and

    b) the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd".

  NOTE 1: If the MCData client logs off from the MCData service but the MCData UE remains registered the MCData UE performs a re-registration as specified in 3GPP TS 24.229 [5] without the supported g.3gpp.mcdata media feature tags and the g.3gpp.icsi-ref media feature tag containing the supported MCData service ICSIs in the Contact header field of the SIP REGISTER request.

If the MCData client, upon performing SIP registration:

  1) has successfully finished the user authentication procedure as described in 3GPP TS 24.482 [24];

  2) has available an access-token;

  3) based on implementation decides to use SIP REGISTER for service authorization;

  4) confidentiality protection is disabled as specified in subclause 6.5.2.3.1; and

  5) integrity protection is disabled as specified in subclause 6.5.3.3.1;

then the MCData client shall include an application/vnd.3gpp.mcdata-info+xml MIME body as defined in Annex F.1 with the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures, in the SIP REGISTER request.

  NOTE 2: the access-token contains the MCData ID of the user.

If the MCData client, upon performing SIP registration:

  1) has successfully finished the user authentication procedure as described in 3GPP TS 24.482 [24];

  2) has an available access-token;

3) based on implementation decides to use SIP REGISTER for service authorization; and

4) either confidentiality protection is enabled as specified in subclause 6.5.2.3.1 or integrity protection is enabled as specified in subclause 6.5.3.3.1;

then the MCData client:

1) shall include an application/mikey MIME body with the CSK as MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [26] in the body of the SIP REGISTER request;

2) if confidentiality protection is enabled as specified in subclause 6.5.2.3.1, shall encrypt the received access-token using the CSK and shall include in the body of the SIP REGISTER request, an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdata-access-token> element set to the encrypted access-token, as specified in subclause 6.5.3.3.1;

3) if confidentiality protection is disabled as specified in subclause 6.5.2.3.1, shall include an application/vnd.3gpp.mcdata-info+xml MIME body as defined in Annex F.1 with the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures; and

4) if integrity protection is enabled as specified in subclause 6.5.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcdata-info+xml MIME body by following the procedures in subclause 6.6.3.3.3.

[TS 24.282, clause 7.2.1A]

This procedure is only referenced from other procedures.

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

1) shall set the Request-URI to the public service identity identifying the participating MCData function serving the MCData user;

2) 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];

3) shall set the Event header field to the "poc-settings" value; and

4) shall set the Expires header field according to IETF RFC 3903 [34], to 4294967295, if the MCData user is not removing the MCData service settings, otherwise to remove the MCData service settings the MCData client shall set the Expires header field to zero.

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

NOTE 2: The expiration timer of the MCData client service settings is only applicable for the MCData client service settings from the MCData client that matches the Instance Identifier URN. The expiration timer of MCData user service settings is also updated in the MCData server if expiration timer of MCData client service settings is updated in the MCData server.

NOTE 3: Removing the MCData service settings by setting the Expires header field to zero, logs off the MCData client from the MCData service.

[TS 24.282, clause 7.2.2]

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

1) has successfully finished the user authentication procedure as described in 3GPP TS 24.482 [24]; and

2) has available an access-token;

then the MCData client:

1) shall perform the procedures in subclause 7.2.1A;

2) if confidentiality protection is disabled as specified in subclause 6.5.2.3.1 and integrity protection is disabled, shall include in the body of the SIP PUBLISH request, an application/vnd.3gpp.mcdata-info+xml MIME body as

specified in Annex F.1 with the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures;

3) if either confidentiality protection is enabled as specified in subclause 6.5.2.3.1 or integrity protection is enabled as specified in subclause 6.5.3.3.1 shall include an application/mikey MIME body with the CSK as MIKEY-SAKKE I_MESSAGE as specified in 3GPP TS 33.180 [26] in the body of the SIP PUBLISH request;

4) if confidentiality protection is enabled as specified in subclause 6.5.2.3.1, shall include in the body of the SIP PUBLISH request an application/vnd.3gpp.mcdata-info+xml MIME body with:

   a) the <mcdata-access-token> element set to the received access-token encrypted using the CSK, as specified in subclause 6.5.2.3.3; and

   b) the <mcdata-client-id> element set to the encrypted MCData client ID of the originating MCData client, as specified in subclause 6.5.2.3.3;

5) if confidentiality protection is disabled as specified in subclause 6.5.2.3.1, shall include in the body of the SIP PUBLISH request, an application/vnd.3gpp.mcdata-info+xml MIME body as specified in Annex F.1 with:

   a) the <mcdata-access-token> element set to the value of the access token received during the user authentication procedures in the body of the SIP PUBLISH request; and

   b) the <mcdata-client-id> element set to the value of the MCData client ID of the originating MCData client;

6) shall include an application/poc-settings+xml MIME body as defined in 3GPP TS 24.379 [10] containing:

   a) the <selected-user-profile-index> element set to the value contained in the "user-profile-index" attribute of the selected MCData user profile as defined in 3GPP TS 24.484 [12]; and

7) if integrity protection is enabled as specified in subclause 6.5.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcdata-info+xml MIME body and application/poc-settings+xml MIME body by following the procedures in subclause 6.5.3.3.3.

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

[TS 24.282, clause 7.2.3]

To set, update, remove or refresh the MCData service settings, the MCData client shall generate a SIP PUBLISH request according 3GPP TS 24.229 [5], IETF RFC 3903 [34] and IETF RFC 4354 [35]. In the SIP PUBLISH request, the MCData client:

1) shall perform the procedures in subclause 7.2.1A;

2) if confidentiality protection is enabled as specified in subclause 6.5.2.3.1, shall include in the body of the SIP PUBLISH request, an application/vnd.3gpp.mcdata-info+xml MIME body with:

   a) the <mcdata-request-uri> element set to the targeted MCData ID encrypted using the CSK, as specified in subclause 6.5.2.3.3; and

   b) the <mcdata-client-id> element set to the encrypted MCData client ID of the originating MCData client, as specified in subclause 6.5.2.3.3;

3) if confidentiality protection is disabled as specified in subclause 6.5.2.3.1, shall include an application/vnd.3gpp.mcdata-info+xml MIME body as specified in Annex F.1 with:

   a) the <mcdata-request-uri> set to the cleartext targeted MCData ID; and

   b) the <mcdata-client-id> element set to the value of the MCData client ID of the originating MCData client;

4) shall include an application/poc-settings+xml MIME body as defined in 3GPP TS 24.379 [10] containing:

   a) the <selected-user-profile-index> element set to the value contained in the "user-profile-index" attribute of the selected MCData user profile as defined in 3GPP TS 24.484 [12]; and

5) if integrity protection is enabled as specified in subclause 6.5.3.3.1, shall use the CSK to integrity protect the application/vnd.3gpp.mcdata-info+xml MIME body and application/poc-settings+xml MIME body by following the procedures in subclause 6.5.3.3.3.

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

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

[TS 33.180, clause 6.1.2]

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

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

5.1.3   Test description

5.1.3.1   Pre-test conditions

System Simulator:

-    SS (MCData server).

-    For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [20] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCData operation in the MCData configuration document).

IUT:

-    UE (MCData client)

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

-    The MCData Client has been provisioned with the Initial UE Configuration Data as specified in TS 36.579-1 [2], clause 5.5.8.1 allowing for the location of the configuration management server for configuration of the MCData UE initial configuration management object (MO) and the default MCData user profile configuration management object (MO).

-    A single APN (px_MCData_ALL_APN, TS 36.579-5 [5]) shall be provided in the Initial UE Configuration Data which the UE shall use to access each and all MCData relevant services including the MCData SIP-1 reference point, the MC common core services for the HTTP-1 reference point and the MC identity management service for the CSC-1 reference point.

-    According to TS 33.180 [30] all HTTP connections are secured by TLS.
     The HTTP-1 interface authentication between the HTTP client in the MC UE and the HTTP server endpoint (HTTP proxy, IdM server or KMS) shall be performed by one-way authentication of the HTTP server endpoint based on server certificate as described in TS 33.180 [30] clause 6.1.1.

-    The UE User is provided with username/password for user authentication (px_MCData_User_A_username, px_MCData_User_A_password as provided in TS 36.579-5 [5], Table 9.2-1 MCData Client Common PIXIT)

Preamble:

-    The MCData client is attached to EPS services and then the UE is Switched OFF (state 1) according to TS 36.508 [20].

5.1.3.2 Test procedure sequence

Table 5.1.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	The UE is switched-on.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC related actions which step 1 above will trigger are described in TS 36.579-1 [2], subclause 5.4.2B 'Generic Test Procedure for MCData UE registration'. The test sequence below shows only the MCData relevant messages being exchanged.	-	-	-	-
2	Make the MCDATA User request MCData service authorisation/configuration. NOTE: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
3-12	Check: Does the UE (MCDATA Client) perform the generic procedure for MCDATA user authentication specified in TS 36.579-1 [2] Table 5.3.2.3-1 steps 1 through 10? NOTE: The term "MCPTT" in TS 36.579-1 [2] Table 5.3.2.3-1 is replaced with "MCDATA".	-	-	1	P
13-16	Check: Does the UE (MCDATA Client) perform the generic procedure for MCDATA key management authorization and obtain identity management key material as specified in TS 36.579-1 [2] Table 5.3.2.3-1 steps 11 through 14? NOTE: The term "MCPTT" in TS 36.579-1 [2] Table 5.3.2.3-1 is replaced with "MCDATA".	-	-	2	P
-	EXCEPTION: In parallel to the events described in all steps below, the steps in Table 5.1.3.2-2 and Table 5.1.3.2-3 should take place.	-	-	-	-
-	EXCEPTION: Steps 17a1-17b2 describe behaviour that depends on UE implementation; the "lower case letter" identifies a step sequence that take place when one or the other is the case.	-	-	-	-
17a1	Check: Does the UE (MCDATA Client) send a SIP REGISTER request for service authorisation?	-->	SIP REGISTER	3	P
17a2	The SS (MCDATA Server) sends SIP 200 (OK). NOTE: The user is now authorized for MCDATA service.	<--	SIP 200 (OK)	-	-
17a3	Check: Does the UE (MCDATA Client) send a SIP PUBLISH request for update of PoC-settings? NOTE: See NOTE 1 of TS 36.579-1 [2] Table 5.3.2.3-2.	-->	SIP PUBLISH	6	P
17a4	The SS (MCDATA Server) sends SIP 200 (OK).	<--	SIP 200 (OK)	-	-
17b1	Check: Does the UE (MCDATA Client) send a SIP PUBLISH request for service authorisation and update of PoC-settings? NOTE: See NOTE 1 of TS 36.579-1 [2] Table 5.3.2.3-2.	-->	SIP PUBLISH	3, 6	P
17b2	The SS (MCDATA Server) sends SIP 200 (OK).	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

Table 5.1.3.2-2: Parallel Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE (MCDATA Client) perform the configuration management subscription and notification procedure as described in TS 36.579-1 [2] Table 5.3.2.3-2A? NOTE: The term "MCPTT" in TS 36.579-1 [2] Table 5.3.2.3-2A is replaced with "MCDATA".	-	-	4	P

Table 5.1.3.2-3: Parallel Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Check: Does the UE (MCDATA Client) perform the group document subscription and notification procedure as described in TS 36.579-1 [2] Table 5.3.2.3-2B? NOTE: The term "MCPTT" in TS 36.579-1 [2] Table 5.3.2.3-2B is replaced with "MCDATA".	-	-	5	P

5.1.3.3   Specific message contents

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

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

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

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

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

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

Table 5.1.3.3-4: SIP 200 (OK) (Step 17a2, 17a4, 17b2, Table 5.1.3.2-1)

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

5.2   Configuration / Group Creation / Group ReGroup Creation / Group ReGroup Teardown

5.2.1   Test Purpose (TP)

(1)

```
with { UE (MCData Client) attached to EPS services }
ensure that {
  when { the UE (MCData Client) requests formation of a new MCData group }
    then { on successful group creation the UE (MCData Client) has access to the new group }
         }
```

(2)

```
with { UE (MCData Client) having access to at least two MCData groups }
ensure that {
  when { the UE (MCData Client) requests the groups to be combined }
    then { on successful group regrouping the UE (MCData Client) has access to the temporary group }
          }
```

(3)

```
with { UE (MCData Client) having access to a temporary group }
ensure that {
  when { the UE (MCData Client) requests temporary group tear down }
    then { on successful group tear down the UE (MCData Client) removes the temporary group }
          }
```

5.2.2   Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.481 clauses 6.3.2.2.1, 6.3.2.2.2, 6.3.14.1, 6.3.14.2, 6.3.15.1 and 6.3.15.2; TS 33.180, clause 7.3.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated these are Rel-14 requirements.

[TS 24.481, clause 6.3.2.2.1]

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

[TS 24.481, clause 6.3.2.2.2]

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

[TS 24.481, clause 6.3.14.1]

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

> NOTE: The temporary MCS group formation procedure does not ensure that the MCSs of the temporary MCS group are the same as MCSs of each constituent MCS group of the temporary MCS group.

[TS 24.481, clause 6.3.14.2]

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

   a)   shall set the Request-URI to an XCAP URI:

      1)   in users tree where the XUI is set to a group creation XUI configuration parameter; and

      2)   with the document selector identifying the temporary MCS group to be created; and

   b)   shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup creation specified in subclause 7.3.4.3, with a <group> element containing a group document for an MCS group. In the group document, the GMC shall include the <on-network-temporary> element according to subclause 7.2. In the <on-network-temporary> element, the GMC shall include <constituent-MCPTT-group-IDs> element according to subclause 7.2. In the <constituent-MCPTT-group-IDs> element, the GMC shall include one <constituent-MCPTT-group-ID> element according to subclause 7.2 for each MCS group to be combined.

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

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

[TS 24.481, clause 6.3.15.1]

This procedure enables a GMC to initiate tear down of a temporary MCS group.

[TS 24.481, clause 6.3.15.2]

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

[TS 33.180, clause 7.3.2]

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

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

5.2.3   Test description

5.2.3.1   Pre-test conditions

System Simulator:

- SS (MCData server)

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

IUT:

- UE (MCData Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCData UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCData User performs the Generic Test Procedure for MCData Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCData Client Application has been activated and User has registered-in as the MCData User with the Server as active user at the Client.

5.2.3.2 Test procedure sequence

Table 5.2.3.2-1: Main behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCData User select the default MCData Group A. NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC related actions which step 1 above will trigger are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCData relevant messages being exchanged.	-	-	-	-
2	Make the MCData User request the creation of a new group, MCData Group B, for communication with the user and two other users, MCData Client B and MCData Client C. NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
3	Check: Does the UE (MCData Client) send a HTTP PUT to the SS (MCData Server) to request creation of the new group?	-->	HTTP PUT	1	P
4	The SS (MCData Server) sends a SIP NOTIFY informing that the new group has been created and supplies the group configuration data.	<--	SIP NOTIFY	-	-
5	The UE (MCData Client) sends a SIP 200 (OK) message to the SS.	-->	SIP 200 (OK)	-	-
6	The SS (MCData Server) sends a HTTP 201 (Created) containing the new group identifier.	<--	HTTP 201 (Created)	-	-
7	Check: Does the UE (MCData Client) notify the user that the MCData User is now part of Group C? NOTE 2: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
8	Make the MCData User request the creation of a new group, MCData Group C, for communication with the user and two other users, MCData Client B and MCData Client C. NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
9	The UE (MCData Client) sends a HTTP PUT to the SS to request creation of the new group.	-->	HTTP PUT	-	-
10	The SS (MCData Server) sends a SIP NOTIFY informing that the new group has been created and supplies the group configuration data.	<--	SIP NOTIFY	-	-
11	The UE sends a SIP 200 (OK) message to the SS.	-->	SIP 200 (OK)	-	-
12	The SS (MCData Server) sends a HTTP 201 (Created) containing the new group identifier.	<--	HTTP 201 (Created)	-	-
13	Make the MCData User request the creation of a temporary group formed from MCData Group B and MCData Group C to communicate with itself and MCData Client B and MCData Client C. NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
14	Check: Does the UE (MCData Client) send a HTTP POST to the SS to request creation of the new temporary group?	-->	HTTP POST	2	P

15	The SS (MCData Server) sends a HTTP 409 (Conflict).	<--	HTTP 409 (Conflict)	-	-
16	Check: Does the UE (MCData Client) send a HTTP POST to the SS to request creation of the new temporary group?	-->	HTTP POST	2	P
17	The SS (MCData Server) sends a SIP NOTIFY informing that the new group has been created and supplies the group configuration data.	<--	SIP NOTIFY	-	-
18	The UE (MCData Client) sends a SIP 200 (OK) message to the SS.	-->	SIP 200 (OK)	-	-
19	The SS (MCData Server) sends a HTTP 200 (OK).	<--	HTTP 200 (OK)	-	-
20	Check: Does the UE (MCData Client) notify the user that the MCData User is now part of a temporary group? NOTE 2: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
21	Make the MCData User request tear down of the temporary group. NOTE 1: This is expected to be done via a suitable implementation dependent mechanism and may be manually or automatically initiated.	-	-	-	-
22	Check: Does the UE (MCData Client) send a HTTP DELETE to the SS to request tear down of the temporary group?	-->	HTTP DELETE	3	P
23	The SS (MCData Server) sends a SIP NOTIFY informing that the temporary group has been removed.	<--	SIP NOTIFY	-	-
24	The UE (MCData Client) sends a SIP 200 (OK) message to the SS.	-->	SIP 200 (OK)	-	-
25	The SS (MCData Server) sends a HTTP 200 (OK) indicating group tear down completed.	<--	HTTP 200 (OK)	-	-
26	Check: Does the UE (MCData Client) notify the user that the MCData User is no longer part of the temporary group? NOTE 2: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

5.2.3.3 Specific message contents

Table 5.2.3.3-1: HTTP PUT (Step 3, Table 5.2.3.2-1)

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

Table 5.2.3.3-2: HTTP PUT (Step 9, Table 5.2.3.2-1)

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

Table 5.2.3.3-3: SIP NOTIFY (Step 4, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME-Content-Type	"application/mikey"			
mikey	As described in Table 5.2.3.3-5	MIKEY message, containing the GMK	TS 33.179 [15]	
MCData-Info				
mcdata-Params				
mcdata-calling-group-id	px_MCData_Group_B_ID	Group identifier	TS 24.481 [11]	

Table 5.2.3.3-4: SIP NOTIFY (Step 10, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME-Content-Type	"application/mikey"			
mikey	As described in Table 5.2.3.3-6	MIKEY message, containing the GMK	TS 33.179 [15]	
MCData-Info				
mcdata-Params				
mcdata-calling-group-id	px_MCData_Group_C_ID	Group identifier	TS 24.481 [11]	

Table 5.2.3.3-5: MIKEY-SAKKE I_MESSAGE (Step 4, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.9.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
General Extension payload				
MCData Group ID	px_MCData_Group_B_ID	Group identifier	TS 33.179 [15]	

Table 5.2.3.3-6: MIKEY-SAKKE I_MESSAGE (Step 10, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.9.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
General Extension payload				
MCData Group ID	px_MCData_Group_C_ID	Group identifier	TS 33.179 [15]	

Table 5.2.3.3-7: HTTP 201 (Created) (Step 6, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.7-1, condition GROUPCONFIG
NOTE: ue-group-configuration is as specified in TS 36.579-1 [2], Table 5.5.7.1-3 with MCDataGroupID specified as px_MCData_Group_B_ID

Table 5.2.3.3-8: HTTP 201 (Created) (Step 12, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.7-1, condition GROUPCONFIG
NOTE: ue-group-configuration is as specified in TS 36.579-1 [2], Table 5.5.7.1-3 with MCDataGroupID specified as px_MCData_Group_C_ID

Table 5.2.3.3-9: HTTP POST (Step 14 & 16, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.3-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Status-line				
Request-URI	px_MCData_XCAP_Group_Config_URI	Points to the group configuration document	TS 24.481 [11]	
Content-Type				
media-type	application/vnd.3gpp.GMOP+xml; charset="utf-8			
Message-body				
gmop:document				
xmlns	"urn:oma:xml:poc:list-service"	list-service xml namespace identifier	TS 24.481 [11]	
xmlns:rl	"urn:ietf:params:xml:ns:resource-lists"	resource-lists xml namespace identifier	TS 24.481 [11]	
xmlns:cp	"urn:ietf:params:xml:ns:common-policy"	common-policy xml namespace identifier	TS 24.481 [11]	
xmlns:ocp	"urn:oma:xml:xdm:common-policy"	common-policy xml namespace identifier	TS 24.481 [11]	
xmlns:oxe	"urn:oma:xml:xdm:extensions"	extensions xml namespace identifier	TS 24.481 [11]	
xmlns:rmcdatagi	"urn:3gpp:ns:mcdataGroupInfo:1.0"	MCData group info namespace identifier	TS 24.481 [11]	
xmlns:gmop	"urn:3gpp:ns:mcdataGMOP:1.0"			
gmop:request				
group				
list-service				
uri	temp group uri	uri of the temporary MCData group	TS 24.481 [11]	A1, A2
invite-members	"true"	Allow users to invite members to this group	TS 24.481 [11]	
supported-services				
service-enabler	"urn:urn-7:3gpp-service.ims.icsi.mcdata"			
MCData-group-IDs				
MCData-group-id	px_MCData_Group_B_ID	uri of the group to be part of the temporary group	TS 24.481 [11]	
MCData-group-Id	px_MCData_Group_C_ID	uri of the group to be part of the temporary group	TS 24.481 [11]	

Condition	Explanation
A1	temp group uri equals "mcdata-group-T@mcdata-op.err" in Step 14
A2	temp group uri equals px_MCData_Group_T_ID in Step 16

Table 5.2.3.3-10: HTTP 409 (Conflict) (Step 15, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.9-1

Table 5.2.3.3-11: SIP NOTIFY (Step 17, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME-Content-Type	"application/mikey"			
mikey	As described in Table 5.2.3.3-11	MIKEY message, containing the GMK	TS 33.179 [15]	
MCData-Info				
mcData-Params				
mcData-calling-group-id	px_MCData_Group_T_ID	Group identifier	TS 24.481 [11]	

Table 5.2.3.3-12: MIKEY-SAKKE I_MESSAGE (Step 4, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.9.1-1				
Information Element	Value/remark	Comment	Reference	Condition
General Extension payload				
MCData Group ID	px_MCData_Group_T_ID	Group identifier	TS 33.179 [15]	

Table 5.2.3.3-13: HTTP 200 (OK) (Step 19, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.10-1, condition GROUPCONFIG
NOTE: ue-group-configuration is as specified in TS 36.579-1 [2], Table 5.5.7.1-1 with MCDataGroupID specified as px_MCData_Group_T_ID.

Table 5.2.3.3-14: HTTP DELETE (Step 22, Table 5.2.3.2-1)

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

Table 5.2.3.3-15: SIP NOTIFY (Step 23, Table 5.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Message-body				
MIME-Content-Type	"application/mikey"			
mikey	As described in Table 5.2.3.3-3 and 5.2.3.3-4	MIKEY message, containing the GMK	TS 33.179 [15]	
MCData-Info				
mcdata-Params				
mcdata-calling-group-id	px_MCData_Group_T_ID	Group identifier	TS 24.481 [11]	

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

5.3.1 Test Purpose (TP)

(1)

```
with { UE (MCData Client) already provisioned with the group information or a pointer to the group
information, that the UE (MCData Client) is allowed to be affiliated }
ensure that {
  when { MCData User requests for current affiliation status and to subscribe to affiliation status
changes for the MCData User }
```

then { UE (MCData Client) requests to subscribe to affiliation status changes for the MCData User by sending the SS (MCData Server) a SIP SUBSCRIBE message **and** starts informing the MCData User of any affiliation status changes for the MCData User after the subscription is accepted }
            }

(2)

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

(3)

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

(4)

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

(5)

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

(6)

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

(7)

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

(8)

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

(9)

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

5.3.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 8.2.2, 8.2.3, 8.2.4, and 8.2.5. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 8.2.2]

In order:

- to indicate that an MCData user is interested in one or more MCData group(s) at an MCData client;

- to indicate that the MCData user is no longer interested in one or more MCData group(s) at the MCData client;

- to refresh indication of an MCData user interest in one or more MCData group(s) at an MCData client due to near expiration of the expiration time of an MCData group with the affiliation status set to the "affiliated" state received in a SIP NOTIFY request in subclause 8.2.3;

- to send an affiliation status change request in mandatory mode to another MCData user; or

- any combination of the above;

the MCData client 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 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 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7];

4) if the targeted MCData user is interested in at least one MCData group at the targeted MCData 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 MCData user is no longer interested in any MCData group at the targeted MCData client, shall set the Expires header field according to IETF RFC 3903 [34], to zero; and

6) shall include an application/pidf+xml MIME body indicating per-user affiliation information according to subclause 8.4.1. In the MIME body, the MCData client:

    a) shall include all MCData groups where the targeted MCData user indicates its interest at the targeted MCData client;

    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 <affiliation> element; and

    d) shall set the <p-id> child element of the <presence> root element to a globally unique value.

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

[TS 24.282, clause 8.2.3]

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

In order to discover MCData groups:

1) which the MCData user at an MCData client is affiliated to; or

2) which another MCData user is affiliated to;

the MCData client 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 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 targeted MCData 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 MCData client 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 MCData client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero; and

6) shall include an Accept header field containing the application/pidf+xml MIME type; and

7) if requesting MCData groups where the MCData user is affiliated to at the MCData client, shall include an application/simple-filter+xml MIME body indicating per-client restrictions of presence event package notification information according to subclause 8.4.2, indicating the MCData client ID of the MCData client.

In order to re-subscribe or de-subscribe, the MCData client 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 MCData client:

1) if the MCData client 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 MCData client 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-user affiliation information constructed according to subclause 8.4.1, then the MCData client shall determine affiliation status of the MCData user for each MCData group at the MCData client(s) in the MIME body. If the <p-id> child element of the <presence> root element of the application/pidf+xml MIME body of the SIP NOTIFY request is included, the <p-id> element value indicates the SIP PUBLISH request which triggered sending of the SIP NOTIFY request.

[TS 24.282, clause 8.2.4]

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

Upon receiving a request from the MCData user to send an affiliation status change request in negotiated mode to a target MCData user, the MCData client shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [5] and IETF RFC 3428 [6]. In the SIP MESSAGE 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 target MCData 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] in the SIP MESSAGE request;

4) shall include an application/vnd.3gpp.mcdata-affiliation-command+xml MIME body as specified in Annex D.3; and

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

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

[TS 24.282, clause 8.2.5]

Upon receiving a SIP MESSAGE request containing:

1) 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]; and

2) an application/vnd.3gpp.mcdata-affiliation-command+xml MIME body with a list of MCData groups for affiliation under the <affiliate> element and a list of MCData groups for de-affiliation under the <de-affiliate> element;

then the MCData client:

1) shall send a 200 (OK) response to the SIP MESSAGE request;

2) shall seek confirmation of the list of MCData groups for affiliation and the list of MCData groups for de-affiliation, resulting in an accepted list of MCData groups for affiliation and an accepted list of MCData groups for de-affiliation; and

3) if the user accepts the request:

a) shall perform affiliation for each entry in the accepted list of MCData groups for affiliation for which the MCData client is not affiliated, as specified in subclause 8.2.2; and

b) shall perform de-affiliation for each entry in the accepted list of MCData groups for de-affiliation for which the MCData client is affiliated, as specified in subclause 8.2.2.

5.3.3   Test description

5.3.3.1   Pre-test conditions

System Simulator:

- SS (MCData server)

- For the underlying "transport bearer" over which the SS and the UE will communicate Parameters are set to the default parameters for the basic E-UTRA Single cell network scenarios, as defined in TS 36.508 [20] clause 4.4. The simulated Cell 1 shall belong to PLMN1 (the PLMN specified for MCData operation in the MCData configuration document).

IUT:

- UE (MCData Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCData UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCData User performs the Generic Test Procedure for MCData Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble:

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCData Client Application has been activated and User has registered-in as the MCData User with the Server as active user at the Client.

5.3.3.2 Test procedure sequence

Table 5.3.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCData User send a request to discover which groups the MCData User is affiliated to and to subscribe to affiliation status changes for the MCData User. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCData Client) send a SIP SUBSCRIBE message to subscribe to its own affiliation status changes?	-->	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 informing that the affiliation status of the MCData USER with GROUP A is "affiliated", but no other group is "affiliated".	<--	SIP NOTIFY	-	-
5	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
6	Make the MCData User send a request to affiliate to a MCData group, GROUP D. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
7	Check: Does the UE (MCData Client) send a SIP PUBLISH message to affiliate with GROUP D?	-->	SIP PUBLISH	2	P
8	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
9	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the MCData USER with GROUP D is "affiliating"	<--	SIP NOTIFY	-	-
10	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
11	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the MCData USER with GROUP D is "affiliated".	<--	SIP NOTIFY	-	-
12	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
13	Check: Does the UE (MCData Client) notify the user that the MCData User is now affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
14	Make the MCData User send a request to discover which groups a target user is affiliated to and to subscribe to affiliation status changes for that target user. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
15	Check: Does the UE (MCData Client) send a SIP SUBSCRIBE message to subscribe to affiliation status changes of a target user?	-->	SIP SUBSCRIBE	3	P
16	The SS responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
17	Make the MCData User send a request to have a target user affiliate to a MCData group, GROUP D (mandatory mode). NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-

18	Check: Does the UE (MCData Client) send a SIP PUBLISH message to have to target user affiliate with GROUP D?	-->	SIP PUBLISH	4	P
19	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
20	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the target user with GROUP D is "affiliating".	<--	SIP NOTIFY	-	-
21	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
22	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the target user with GROUP D is "affiliated".	<--	SIP NOTIFY	-	-
23	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
24	Check: Does the UE (MCData Client) notify the user that the target user is now affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
25	Make the MCData User send a request to have a target user de-affiliate to a MCData group, GROUP D (mandatory mode). NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
26	Check: Does the UE (MCData Client) send a SIP PUBLISH message to have the target user de-affiliate with GROUP D?	-->	SIP PUBLISH	5	P
27	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
28	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the target user with GROUP D is "disaffiliating".	<--	SIP NOTIFY	-	-
29	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
30	Check: Does the UE (MCData Client) notify the user that the target user is now de-affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
31	Make the MCData User send a request to have a target user affiliate to a MCData group, GROUP D (negotiated mode). NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
32	Check: Does the UE (MCData Client) send a SIP MESSAGE message to have a target user affiliate with GROUP D via negotiated mode?	-->	SIP MESSAGE	6	P
33	The SS (MCData Server) responds to the SIP MESSAGE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
34	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the target user with GROUP D is "affiliating".	<--	SIP NOTIFY	-	-
35	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
36	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the target user with GROUP D is "affiliated".	<--	SIP NOTIFY	-	-
37	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-

38	Check: Does the UE (MCData Client) notify the user that the target user is now affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
39	Make the MCData User send a request to de-subscribe from affiliation status changes of a target user. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
40	Check: Does the UE (MCData Client) send a SIP SUBSCRIBE message with the Expires header field set to zero to de-subscribe from affiliation status changes for a target user?	-->	SIP SUBSCRIBE	7	P
41	The SS (MCData Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
42	Make the MCData User send a request to de-affiliate from a MCData group, GROUP D. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
43	Check: Does the UE (MCData Client) send a SIP PUBLISH message to de-affiliate with GROUP D?	-->	SIP PUBLISH	8	P
44	The SS (MCData Server) responds to the SIP MESSAGE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
45	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the user with GROUP D is "disaffiliating".	<--	SIP NOTIFY	-	-
46	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
47	Check: Does the UE (MCData Client) notify the user that the MCData User is no longer affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
48	The SS (MCData Server) sends a SIP MESSAGE to the MCData Client to affiliate the MCData User to GROUP D via negotiated mode.	<--	SIP MESSAGE	-	-
49	Check: Does the UE (MCData Client) send a SIP 200 (OK) message in response to the SIP MESSAGE message?	-->	SIP 200 (OK	9	P
50	Check: Does the UE (MCData Client) notify the user that another user is requesting the MCData User affiliate to GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	9	P
51	Make the MCData User accept to affiliate to GROUP D. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
52	Check: Does the UE (MCData Client) send a SIP PUBLISH message to affiliate with GROUP D?	-->	SIP PUBLISH	9	P
53	The SS (MCData Server) responds to the SIP PUBLISH message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
54	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the MCData USER with GROUP D is "affiliating"	<--	SIP NOTIFY	-	-
55	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
56	The SS (MCData Server) sends a SIP NOTIFY informing that the affiliation status of the MCData USER with GROUP D is "affiliated".	<--	SIP NOTIFY	-	-

57	The UE (MCData Client) responds with a SIP 200 (OK).	-->	SIP 200 (OK)	-	-
58	Check: Does the UE (MCData Client) notify the user that the MCData User is now affiliated with GROUP D? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
-	EXCEPTION: SS (MCData Server) releases the E-UTRA connection.	-	-	-	-

5.3.3.3 Specific message contents

Table 5.3.3.3-1: SIP SUBSCRIBE (step 2, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition GROUPCONFIG AND MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MCData-Info	As described in Table 5.3.3.3-2			

Table 5.3.3.3-2: MCData-INFO in SIP SUBSCRIBE (Table 5.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-1, condition GROUP-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcDatainfo				
mcData-Params				
mcData-request-uri	px_MCData_User_A_ID			

Table 5.3.3.3-3: SIP SUBSCRIBE (step 15, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition MCDATA, GROUPCONFIG				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME body part		SIMPLE-FILTER		
MIME-part-headers				
Content-Type	"application/simple-filter+xml"			
MIME-part-body	SIMPLE-FILTER as described in Table 5.5.3.6-3		TS 24.282 [87] subclause 8.4.2	

Table 5.3.3.3-4: MCData-INFO in SIP SUBSCRIBE (Table 5.3.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_B_ID			

Table 5.3.3.3-5: SIMPLE-FILTER in SIP SUBSCRIBE (Table 5.3.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.6-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
filter-set	px_MCData_Client_B_ID			
nc-bindings	px_MCData_Client_B_ID			

Table 5.3.3.3-6: SIP SUBSCRIBE (step 40, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Expires				
delta-seconds	"0"			
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3		TS 24.282 [87] clause D.1	
MIME body part		SIMPLE-FILTER		
MIME-part-headers				
Content-Type	"application/simple-filter+xml"			
MIME-part-body	SIMPLE-FILTER as described in Table 5.5.3.6-3		TS 24.282 [87] subclause 8.4.2	

Table 5.3.3.3-7: MCData-INFO in SIP SUBSCRIBE (Table 5.3.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_B_ID			

Table 5.3.3.3-8: SIMPLE-FILTER in SIP SUBSCRIBE (Table 5.3.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.6-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
filter-set	px_MCData_Client_B_ID			
nc-bindings	px_MCData_Client_B_ID			

Table 5.3.3.3-9: SIP 200 (OK) (steps 3, 8, 16, 19, 33, 53, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Expires				
delta-seconds	"4294967295"			
Content-Type				
Content-Length	"0"			
Message-body	not present	No message body included - end of SIP message		

Table 5.3.3.3-10: SIP 200 (OK) (steps 27, 41, 44, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Expires				
delta-seconds	"0"			
Content-Type				
Content-Length	"0"			
Message-body	not present	No message body included - end of SIP message		

Table 5.3.3.3-11: SIP 200 (OK) (step 49, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Expires				
delta-seconds	"4294967295"			
Content-Type				
Content-Length	"0"			
Message-body	not present	No message body included - end of SIP message		

Table 5.3.3.3-12: SIP PUBLISH (steps 6, 52, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3		TS 24.282 [87] clause D.1	
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.3.1	

Table 5.3.3.3-13: MCData-INFO in SIP PUBLISH (Table 5.3.3.3-12)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_A_ID			

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity				
tuple id				
status				
affiliation				
group	px_MCData_Group_D_ID			
status	not present			
expires	not present			
p-id	any allowed value			

Table 5.3.3.3-15: SIP PUBLISH (step 18, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3		TS 24.282 [87] clause D.1	
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.3.1	

Table 5.3.3.3-16: MCData-INFO in SIP PUBLISH (Table 5.3.3.3-15)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_B_ID			

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity	px_MCData_Client_B_ID			
tuple id	px_MCData_Client_B_ID			
status				
affiliation				
group	px_MCData_Group_D_ID			
status	not present			
expires	not present			
p-id	any allowed value			

Table 5.3.3.3-18: SIP PUBLISH (step 26, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Expires				
delta-seconds	"0"			
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3		TS 24.282 [87] clause D.1	
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.3.1	

Table 5.3.3.3-19: MCData-INFO in SIP PUBLISH (Table 5.3.3.3-18)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_B_ID			

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity	px_MCData_Client_B_ID			
tuple id	px_MCData_Client_B_ID			
status				
affiliation				
group	px_MCData_Group_D_ID			
status	not present			
expires	not present			
p-id	any allowed value			

Table 5.3.3.3-21: SIP PUBLISH (step 43, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.11-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Expires				
delta-seconds	"0"			
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3		TS 24.282 [87] clause D.1	
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.3.1	

Table 5.3.3.3-22: MCData-INFO in SIP PUBLISH (Table 5.3.3.3-21)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_A_ID			

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity				
tuple id				
status				
affiliation				
group	px_MCData_Group_D_ID			
status	not present			
expires	not present			
p-id	any allowed value			

Table 5.3.3.3-24: SIP NOTIFY (step 4, Table 5.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1				
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
presence entity				
tuple id				
status				
affiliation				
status				
affiliating	not present			
affiliated				
p-id	not present			

Table 5.3.3.3-26: SIP NOTIFY (steps 9, 54, Table 5.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
presence entity				
tuple id				
status				
affiliation				
group	px_MCData_Group_D_ID			

Table 5.3.3.3-28: SIP NOTIFY (steps 11, 56, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity				
tuple id				
status				
affiliation				
group	px_MCData_Group_D_ID			
status				
affiliating	not present			
affiliated				

Table 5.3.3.3-30: SIP NOTIFY (steps 20, 34, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-3, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		**PIDF**		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity	px_MCData_Client_B_ID			
tuple id	px_MCData_Client_B_ID			
status				
affiliation				
group	px_MCData_Group_D_ID			

Table 5.3.3.3-32: SIP NOTIFY (steps 22, 36, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity	px_MCData_Client_B_ID			
tuple id	px_MCData_Client_B_ID			
status				
affiliation				
group	px_MCData_Group_D_ID			
status				
affiliating	not present			
affiliated				

Table 5.3.3.3-34: SIP NOTIFY (step 28, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
presence entity	px_MCData_Client_B_ID			
tuple id	px_MCData_Client_B_ID			
status				
affiliation				
group	px_MCData_Group_D_ID			
status				
affiliating	not present			
disaffiliating				

Table 5.3.3.3-36: SIP NOTIFY (step 45, Table 5.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Content-Type				
Content-Length				
Message-body				
MIME body part		PIDF		
MIME-part-headers				
Content-Type	"application/pidf+xml"			
MIME-part-body	PIDF as described in Table 5.5.3.5-3		TS 24.282 [87] subclause 8.4.1	

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

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.5-3				
presence entity				
tuple id				
status				
affiliation				
group	px_MCData_Group_D_ID			
status				
affiliating	not present			
disaffiliating				

Table 5.3.3.3-38: SIP MESSAGE (step 32, Table 5.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Content-Type				
Content-Length				
Message-body				
MIME body part		MCPTT/MCVideo/MCData Info		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	MCData-Info as described in Table 5.5.3.2.1-3			
MIME body part		Affiliation-Command		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-affiliation-command+xml"			
MIME-part-body	MCData-Affiliation-Command as described in Table 5.5.3.7-3		TS 24.379 [9] clause F.4	

Table 5.3.3.3-39: MCData-INFO in SIP MESSAGE (Table 5.3.3.3-38)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_B_ID			

Table 5.3.3.3-40: MCData-AFFILIATION-COMMAND in SIP MESSAGE (Table 5.3.3.3-38)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.7-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
command-list				
affiliate				
group	px_MCData_Group_D_ID			

Table 5.3.3.3-41: SIP MESSAGE (step 48, Table 5.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
Content-Length				
Message-body				
MIME-Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MCData-Info	As described in Table 5.3.3.3-42			
MIME-Content-Type	"application/vnd.3gpp.mcdata-affiliation-command+xml"			
MCData-Affiliation-Command	As described in Table 5.3.3.3-43			

Table 5.3.3.3-42: MCData-INFO in SIP MESSAGE (Table 5.3.3.3-41)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdatainfo				
mcdata-Params				
mcdata-request-uri	px_MCData_User_A_ID			

Table 5.3.3.3-43: MCData-AFFILIATION-COMMAND in SIP MESSAGE (Table 5.3.3.3-41)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.7-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
command-list				
affiliate				
group	px_MCData_Group_D_ID			

5.4 Configuration / Determination of MCData Service Settings / Current Active MCData Settings / De-subscribe

5.4.1 Test Purpose (TP)

(1)

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

(2)

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

(3)

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

5.4.2   Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.282 clause 7.2.4. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated these are Rel-14 requirements.

[TS 24.282, clause 7.2.4]

In order to discover MCData service settings of another MCData client of the same MCData user or to verify the currently active MCData service settings of this MCData client, the MCData client shall generate an initial SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 6665 [36], and IETF RFC 4354 [35].

In the SIP SUBSCRIBE 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 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7];

4) shall set the Event header field to the 'poc-settings' value;

5) shall include an Accept header field containing the "application/poc-settings+xml" MIME type;

6) if the MCData client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295; and

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

7) if the MCData client wants to fetch the current state only, shall set the Expires header field according to IETF RFC 6665 [36], to zero.

In order to re-subscribe or de-subscribe, the MCData client shall generate an in-dialog SIP SUBSCRIBE request according to 3GPP TS 24.229 [5], IETF RFC 6665 [36], IETF RFC 4354 [35]. In the SIP SUBSCRIBE request, the MCData client:

1) shall set the Event header field to the 'poc-settings' value;

2) shall include an Accept header field containing the "application/poc-settings+xml" MIME type;

3) if the MCData client wants to receive the current status and later notification, shall set the Expires header field according to IETF RFC 6665 [36], to 4294967295; and

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

4) if the MCData client wants to de-subscribe, shall set the Expires header field according to IETF RFC 6665 [36], to zero.

Upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [5], IETF RFC 6665 [36] and IETF RFC 4354 [35], that contains an application/poc-settings+xml MIME body the MCData client shall cache:

1) the <am-settings> element of the poc-settings+xml MIME body for each MCData client identified by the "id" attribute according to IETF RFC 4354 [35] as the current Answer-mode indication of that MPCTT client; and

2) the <selected-user-profile-index> element of the poc-settings+xml MIME body for each MCData client identified by the "id" attribute according to IETF RFC 4354 [35] as the active MCData user profile of that MCData client.

5.4.3 Test description

5.4.3.1 Pre-test conditions

System Simulator:

- SS (MCData server)

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

IUT:

- UE (MCData Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCData UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCData User performs the Generic Test Procedure for MCData Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCData Client Application has been activated and User has registered-in as the MCData User with the Server as active user at the Client.

5.4.3.2 Test procedure sequence

Table 5.4.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to verify the currently active MCData service settings of the UE (MCDATA Client) and to receive later notifications. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP SUBSCRIBE message to request to verify the currently active MCData service settings of the UE (MCDATA Client)?	-->	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 with the currently active MCData service settings of the UE (MCDATA Client).	<--	SIP NOTIFY	-	-
5	The UE (MCDATA Client) responds with a SIP 200 (OK) message.	-->	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
6	Make the MCDATA User request to re-subscribe to MCDATA service settings and to receive later notifications. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
7	Check: Does the UE (MCDATA Client) send a SIP SUBSCRIBE message to re-subscribe to MCDATA service settings and to receive later notifications?	-->	SIP SUBSCRIBE	2	P
8	The SS (MCDATA Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
9	The SS (MCDATA Server) sends a SIP NOTIFY with the currently active MCData service settings of the UE (MCDATA Client).	<--	SIP NOTIFY	-	-
10	The UE (MCDATA Client) responds with a SIP 200 (OK) message.	-->	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
11	Make the MCDATA User request to de-subscribe to MCDATA service settings. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-

12	Check: Does the UE (MCDATA Client) send a SIP SUBSCRIBE message to de-subscribe to MCDATA service settings?	-->	SIP SUBSCRIBE	3	P
13	The SS (MCDATA Server) responds to the SIP SUBSCRIBE message with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

5.4.3.3   Specific message contents

Table 5.4.3.3-1: SIP SUBSCRIBE (steps 2, 7, Table 5.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept			TS 24.282 [31] clause 7.2.4	
media-range	"application/poc-settings+xml"			
Expires			TS 24.282 [31] clause 7.2.4	
value	"4294967295"			
Event			TS 24.282 [31] clause 7.2.4	
event-type	"poc-settings"			
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 5.4.3.3-2			
MIME body part		SIMPLE-FILTER		
MIME-part-body	not present			

Table 5.4.3.3-2: MCDATA-Info (Table 5.4.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_User_A_ID			
mcdata-client-id	not present			

Table 5.4.3.3-3: SIP 200 (OK) (steps 3, 8, 13, Table 5.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 5.4.3.3-4: SIP NOTIFY (steps 4, 9, Table 5.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.8-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Contact				
feature-param	not present	"+g.3gpp.icsi-ref= urn:urn- 7:3gpp-service.ims.icsi.mcdata. sds" is not present		
Content-Type				
media-type	"application/poc-settings+xml"			
Message-body				
MIME body part		PoC-Settings		
MIME-part-body	PoC-Settings as described in Table 5.4.3.3-5			

Table 5.4.3.3-5: PoC-Settings (Table 5.4.3.3-4)

Derivation Path: TS 36.579-1 [2] Table 5.5.3.11-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
poc-settings				
incoming-session-barring	"false"			
answer-mode	"automatic"			
incoming-personal-alert-barring	"false"			
simultaneous-sessions-support	"true"			
selected-user-profile-index	element identifying the active MCData user profile			

Table 5.4.3.3-6: SIP 200 (OK) (steps 5, 10, Table 5.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 5.4.3.3-7: SIP SUBSCRIBE (step 12, Table 5.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.14-1, condition MCDATA				
Accept			TS 24.282 [31] clause 7.2.4	
media-range	"application/poc-settings+xml"			
Expires			TS 24.282 [31] clause 7.2.4	
value	"0"			
Event			TS 24.282 [31] clause 7.2.4	
event-type	"poc-settings"			
Content-Type				
media-type	"application/vnd.3gpp. mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 5.4.3.3-2			
MIME body part		SIMPLE-FILTER		
MIME-part-body	not present			

6 On-Network Test Scenarios

6.1 Short Data Service

6.1.1 On-network / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / Client Originated (CO)

6.1.1.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one SDS message with a disposition of
only Delivery }
    then { UE (MCDATA Client) sends a standalone one-to-one SDS message with a disposition of only
Delivery via a SIP MESSAGE message }
          }
```

(2)

```
with { UE (MCDATA Client) having sent a standalone one-to-one SDS message }
ensure that {
  when { UE (MCDATA Client receives a disposition response via a SIP MESSAGE message from the SS
(MCDATA Server) }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
          }
```

(3)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one SDS message with a disposition of
only Read }
```

```
      then { UE (MCDATA Client) sends a standalone one-to-one SDS message with a disposition of only
Read via a SIP MESSAGE message }
            }
```

(4)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one SDS message with a disposition of
both Read and Delivery }
      then { UE (MCDATA Client) sends a standalone one-to-one SDS message with a disposition of both
Read and Delivery via a SIP MESSAGE message }
            }
```

6.1.1.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.2.2.1, 6.2.2.1, 6.2.4.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[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.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 [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 MCData client using the MCData 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 MCData ID of the originating MCData 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 MCData 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].

[TS 24.282, clause 6.2.2.1]

In order to generate an SDS message, the MCData 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 MCData 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;

7)   if the SDS message is intended for an application on the terminating MCData client, shall include an Application ID IE with an Application ID value representing the intended application as specified in subclause 15.2.7;

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; 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 subclause 15.2.3.

When generating an DATA PAYLOAD message for SDS as specified in subclause 15.1.4, the MCData 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; and

   e) shall include the data to be sent in the Payload data.

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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 MCData function serving the MCData user.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

   "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

   "SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

   1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

   2) shall deliver the notification to the user or application.

6.1.1.3   Test description

6.1.1.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

-   UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be large enough to allow the sending of the standalone SDS message using the signalling plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.1.3.2   Test procedure sequence

Table 6.1.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a standalone one-to-one SDS message with a disposition of "DELIVERY". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA client) send a standalone one-to-one SDS message with a disposition of "DELIVERY" via a SIP MESSAGE message?	-->	SIP MESSAGE	1	P
3	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
4	SS (MCDATA Server) sends a disposition notification type of "DELIVERED" in response to the standalone one-to-one SDS message	<--	SIP MESSAGE	-	-
5	Check: Does the UE (MCDATA client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
6	Check: Does the UE (MCDATA client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
7	Make the MCDATA User request to send a standalone one-to-one SDS message with a disposition of "READ". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
8	Check: Does the UE (MCDATA client) send a standalone one-to-one SDS message with a disposition of "READ" via a SIP MESSAGE message?	-->	SIP MESSAGE	3	P
9	SS (MCDATA Server) responds with a SIP 202 (Accepted) message.	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "READ" in response to the standalone one-to-one SDS message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

12	Check: Does the UE (MCDATA client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
13	Make the MCDATA User request to send a standalone one-to-one SDS message with a disposition of "DELIVERY AND READ". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
14	Check: Does the UE (MCDATA client) send a standalone one-to-one SDS message with a disposition of "DELIVERY AND READ" via a SIP MESSAGE message?	-->	SIP MESSAGE	4	P
15	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
16	SS (MCDATA Server) sends a disposition notification type of "DELIVERED AND READ" in response to the standalone one-to-one SDS message	<--	SIP MESSAGE	-	-
17	Check: Does the UE (MCDATA client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
18	Check: Does the UE (MCDATA client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P

6.1.1.3.3 Specific message contents

Table 6.1.1.3.3-1: SIP MESSAGE (step 2, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.1.3.3-2			
MIME body part		MIKEY message		
MIME-part-body	As described in Table 6.1.1.3.3-3			
MIME body part		DATA PAYLOAD		
MIME-part-body	As described in Table 6.1.1.3.3-4			

Table 6.1.1.3.3-2: MCDATA-Info (Table 6.1.1.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_1to1

Table 6.1.1.3.3-3: mikey (Table 6.1.1.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.9.1-2, condition MCDATA

Table 6.1.1.3.3-4: DATA PAYLOAD (Table 6.1.1.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1

Table 6.1.1.3.3-5: SIP MESSAGE (step 4, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.1.3.3-6			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling "			
MIME-part-body	As described in Table 6.1.1.3.3-7			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.1.3.3-6: MCDATA-Info (Table 6.1.1.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User _A			
mcdata-client-id	not present			

Table 6.1.1.3.3-7: SDS NOTIFICATION (Table 6.1.1.3.3-5)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.1.3.3-8: SIP 200 (OK) (steps 5, 11, 17, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.1.3.3-9: SIP MESSAGE (step 8, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.1.3.3-2			
MIME body part		MIKEY message		
MIME-part-body	As described in Table 6.1.1.3.3-3			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-part-body	As described in Table 6.1.1.3.3-10			
MIME body part		DATA PAYLOAD		
MIME-part-body	As described in Table 6.1.1.3.3-4			

Table 6.1.1.3.3-10: SDS SIGNALLING PAYLOAD (Table 6.1.1.3.3-9)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS disposition request type	"0010"	READ		

Table 6.1.1.3.3-11: SIP MESSAGE (step 10, Table 6.1.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.1.3.3-6			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling "			
MIME-part-body	As described in Table 6.1.1.3.3-12			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.1.3.3-12: SDS NOTIFICATION (Table 6.1.1.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000011"	READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.1.3.3-13: SIP MESSAGE (step 14, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.1.3.3-2			
MIME body part		MIKEY message		
MIME-part-body	As described in Table 6.1.1.3.3-3			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-part-body	As described in Table 6.1.1.3.3-14			
MIME body part		DATA PAYLOAD		
MIME-part-body	As described in Table 6.1.1.3.3-4			

Table 6.1.1.3.3-14: SDS SIGNALLING PAYLOAD (Table 6.1.1.3.3-13)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS disposition request type	"0011"	DELIVERY AND READ		

Table 6.1.1.3.3-15: SIP MESSAGE (step 16, Table 6.1.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.1.3.3-6			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-body	As described in Table 6.1.1.3.3-16			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.1.3.3-16: SDS NOTIFICATION (Table 6.1.1.3.3-15)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000100"	DELIVERED AND READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

6.1.2 On-network / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / One-to-one Standalone SDS / Client Terminated (CT)

6.1.2.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a standalone one-to-one SDS message with a disposition request of "DELIVERY" }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message **and** by sending a SIP MESSAGE message with a disposition notification of "DELIVERED" **and** renders the contents of the Payload IE to the MCDATA User }
          }

(2)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a standalone one-to-one SDS message with a disposition request of "READ" }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message **and** renders the contents of the Payload IE to the MCDATA User **and** then sends a SIP MESSAGE message with a disposition notification of "READ" }
          }

(3)

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

```
    when { the MCDATA User receives a standalone one-to-one SDS message with a disposition request of
"DELIVERY AND READ"}
       then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
              }
```

(4)

```
with { the UE (MCDATA Client) having responded with a SIP 200 (OK) message to a standalone one-to-
one SDS message with a disposition request of "DELIVERY AND READ" and timer TDU1 (delivery and read)
not yer expired }
ensure that {
   when { the UE (MCDATA Client) determines that the payload contained in the DATA PAYLOAD message is
for user consumption and before timer TDU1 (delivery and read) expires }
      then { the UE (MCDATA Client) renders the contents of the Payload IE to the MCDATA User and then
sends a SIP MESSAGE message with a disposition notification of "DELIVERED AND READ" }
             }
```

(5)

```
with { the UE (MCDATA Client) having responded with a SIP 200 (OK) message to a standalone one-to-
one SDS message with a disposition request of "DELIVERY AND READ" and the UE (MCDATA Client) not yet
rendering the contents of the Payload IE to the MCDATA User }
ensure that {
   when { timer TDU1 (delivery and read) expires }
      then { UE (MCDATA Client) sends a SIP MESSAGE message with a disposition notification of
"DELIVERED" and then renders the contents of the Payload IE to the MCDATA User and then sends a SIP
MESSAGE message with a disposition notification of "READ" }
             }
```

6.1.2.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.2.2.2, 9.2.1.2, 9.2.1.3, 12.2.1.1, 6.2.3.1, 6.2.4.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.2.2.2]

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

1) may reject the SIP MESSAGE request if there are not enough resources to handle the SIP MESSAGE request;

2) if the SIP MESSAGE request is rejected in step 1), shall respond toward participating MCData function with a SIP 480 (Temporarily unavailable) response and skip the rest of the steps of this subclause;

3) if the SIP MESSAGE request contains an application/mikey MIME body containing a MIKEY-SAKKE I_MESSAGE:

   a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

   b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

   c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

   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 subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

      ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to exchange end-to-end secure message.

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 MCData 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.

[TS 24.282, clause 9.2.1.2]

When a MCData client has received a SIP request containing:

- an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1; and

- an application/vnd.3gpp.mcdata-payload MIME body as specified in subclause E.2;

the MCData Client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body;

2) shall decode the contents of the application/vnd.3gpp.mcdata-payload MIME body;

3) if the SDS SIGNALLING PAYLOAD message contains a new Conversation ID, shall instantiate a new conversation with the Message ID in the SDS SIGNALLING PAYLOAD identifying the first message in the conversation thread;

4) if the SDS SIGNALLING PAYLOAD message contains an existing Conversation ID and:

a) if the SDS SIGNALLING PAYLOAD message does not contain an InReplyTo message ID, shall use the Message ID in the SDS SIGNALLING PAYLOAD to identify a new message in the existing conversation thread; and

b) if the SDS 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 SDS SIGNALLING PAYLOAD, and use the Message ID in the SDS SIGNALLING PAYLOAD to identify the new message;

5) shall identify the number of Payload IEs in the DATA PAYLOAD message from the Number of payloads IE in the DATA PAYLOAD message;

6) if the SDS SIGNALLING PAYLOAD message does not contain an Application ID IE:

a) shall determine that the payload contained in the DATA PAYLOAD message is for user consumption

b) may notify the MCData user; and

c) shall render the contents of the Payload IE(s) to the MCData user;

7) if the SDS SIGNALLING PAYLOAD message contains an Application ID IE:

a) shall determine that the payload contained in the DATA PAYLOAD message is not for user consumption,

b) shall not notify the MCData user;

c) if the Application ID value is unknown, shall discard the SDS message; and

d) if the Application ID value is known, shall deliver the contents of the Payload IE(s) to the identified application;

NOTE 1: If required, the MCData client decrypts the Payload IEs before rendering the SDS message to the user or delivering the SDS message to the application.

NOTE 2: The actions taken when the payload contains application data not meant for user consumption or command instructions are based upon the contents of the payload. If the payload content is addressed to a non-MCData application that is not running, the MCData client starts the local non-MCData application and delivers the payload to that application.

NOTE 3: User consent is not required before accepting the data.

8) may store the message payload in local storage along with the Conversation ID, Message ID, InReplyTo message ID and Date and time; and

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

[TS 24.282, clause 9.2.1.3]

To handle the disposition requests, the MCData 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 MCData 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 MCData 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 6.2.3.1]

In order to generate an SDS notification, the MCData 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 MCData 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

9) if the SDS message was destined for an application, shall include 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.

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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 MCData function serving the MCData user.

6.1.2.3 Test description

6.1.2.3.1 Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be large enough to allow the sending of the standalone SDS message using the signalling plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.2.3.2   Test procedure sequence

Table 6.1.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 56.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone one-to-one SDS message with a disposition of "DELIVERY"	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	SIP MESSAGE	1	P
4	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-
5	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
6	SS (MCDATA Server) initiates a standalone one-to-one SDS message with a disposition of "READ"	<--	SIP MESSAGE	-	-
7	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
8	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
9	Check: Does the UE (MCDATA Client) respond with a disposition notification of "READ"?	-->	SIP MESSAGE	2	P
10	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-

11	SS (MCDATA Server) initiates a standalone one-to-one SDS message with a disposition of "DELIVERY AND READ" NOTE: Timer TDU1 (delivery and read) is started upon receipt of the SIP MESSAGE message that contains a "DELIVERY AND READ" disposition requests. Timer TDU1 (delivery and read)=120ms according to the default value defined in TS 24.282 [31].	<--	SIP MESSAGE	-	-
12	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: Steps 13a1-13b5 describe behaviour that depends on the timing of UE execution; the "lower case letter" identifies a step sequence that takes place if the UE receives a display notification before or after timer TDU1 (delivery and read) expires.	-	-	-	-
13a1	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCData User before the expiry of timer TDU1 (delivery and read)? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
13a2	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED AND READ"?	-->	SIP MESSAGE	4	P
13a3	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
13b1	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED" upon the expiration of timer TDU1 (delivery and read)?	-->	SIP MESSAGE	5	P
13b2	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-
13b3	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User before the expiry of timer TDU1 (delivery and read)? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	5	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-

13b4	Check: Does the UE (MCDATA Client) respond with a disposition notification of "READ"?	-->	SIP MESSAGE	5	P
13b5	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-

6.1.2.3.3   Specific message contents

Table 6.1.2.3.3-1: SIP MESSAGE (step 1, Table 6.1.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-2			
MIME body part		mikey		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-3			
MIME body part		DATA PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-4			

Table 6.1.2.3.3-2: MCDATA-Info (Table 6.1.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-called-party-id	not present			
mcdata-client-id	not present			

Table 6.1.2.3.3-3: mikey (Table 6.1.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.9.1-2, condition MCDATA

Table 6.1.2.3.3-4: DATA PAYLOAD (Table 6.1.2.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1

Table 6.1.2.3.3-5: SIP 200 (OK) (steps 2, 7, 12, Table 6.1.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.2.3.3-6: SIP MESSAGE (steps 3 and 13b1, Table 6.1.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part	not present	MCDATA Info		
MIME body part	not present	MIKEY message		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-headers	As described in Table 6.1.2.3.3-7			

Table 6.1.2.3.3-7: SDS NOTIFICATION (Table 6.1.2.3.3-6)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.2.3.3-8: SIP MESSAGE (step 6, Table 6.1.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-2			
MIME body part		mikey		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-3			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-9			
MIME body part		DATA PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-4			

Table 6.1.2.3.3-9: SDS SIGNALLING PAYLOAD (Table 6.1.2.3.3-8)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.2-1				
SDS disposition request type	"0010"	READ		

Table 6.1.2.3.3-10: SIP MESSAGE (steps 9 and 13b4, Table 6.1.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User _A	The public user identity of the MCData User		
Message-body				
MIME body part	not present	MCDATA Info		
MIME body part	not present	MIKEY message		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-headers	As described in Table 6.1.2.3.3-11			

Table 6.1.2.3.3-11: SDS NOTIFICATION (Table 6.1.2.3.3-10)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000011"	READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.2.3.3-12: SIP MESSAGE (step 11, Table 6.1.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-2			
MIME body part		mikey		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-3			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-13			
MIME body part		DATA PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.2.3.3-4			

Table 6.1.2.3.3-13: SDS SIGNALLING PAYLOAD (Table 6.1.2.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.2-1				
SDS disposition request type	"0011"	DELIVERY AND READ		

Table 6.1.2.3.3-14: SIP MESSAGE (step 13a2, Table 6.1.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part	not present	MCDATA Info		
MIME body part	not present	MIKEY message		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-headers	As described in Table 6.1.2.3.3-15			

Table 6.1.2.3.3-15: SDS NOTIFICATION (Table 6.1.2.3.3-14)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000100"	DELIVERED AND READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

6.1.3   On-network / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / Group Standalone SDS / Client Originated (CO)

6.1.3.1   Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a group standalone SDS message with a disposition of only
Delivery }
     then { UE (MCDATA Client) sends a group standalone SDS message with a disposition of only
Delivery via s SIP MESSAGE message }
            }
```

(2)

```
with { UE (MCDATA Client) having sent a group standalone SDS message }
ensure that {
  when { the UE (MCDATA Client) receives a disposition response via a SIP MESSAGE message from the
SS (MCDATA Server) }
     then { UE (MCData Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
            }
```

6.1.3.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.2.2.1, 6.2.2.1, 6.2.4.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[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:

      a) if the "/<x>/<x>/Common/MCData/AllowedSDS" leaf node present in the group document of the requested MCData group, configured on the group management client as specified in 3GPP TS 24.483 [42] is set to "false", shall reject the request to send SDS and not continue with the rest of the steps in this subclause; and

      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 MCData group identity; and

         iii) the <mcdata-client-id> element set to the MCData client ID of the originating MCData client;

   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].

[TS 24.282, clause 6.2.2.1]

In order to generate an SDS message, the MCData 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 MCData 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;

7)   if the SDS message is intended for an application on the terminating MCData client, shall include an Application ID IE with an Application ID value representing the intended application as specified in subclause 15.2.7;

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; 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 subclause 15.2.3.

When generating an DATA PAYLOAD message for SDS as specified in subclause 15.1.4, the MCData 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; and

e)   shall include the data to be sent in the Payload data.

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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 MCData function serving the MCData user.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

   "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

   "SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

6.1.3.3   Test description

6.1.3.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

-   UE (MCDATA Client)

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

-   The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be large enough to allow the sending of the standalone SDS message using the signalling plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.3.3.2 Test procedure sequence

Table 6.1.3.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a group standalone SDS message with a disposition of "DELIVERY". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a group standalone SDS message with a disposition of "DELIVERY" via a SIP MESSAGE message.	-->	SIP MESSAGE	1	P
3	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
4	SS (MCDATA Server) sends a disposition notification type of "DELIVERED" in response to the standalone one-to-one SDS message.	<--	SIP MESSAGE	-	-
5	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	2	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
6	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P

6.1.3.3.3 Specific message contents

Table 6.1.3.3.3-1: SIP MESSAGE (step 2, Table 6.1.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.3.3.3-2			
MIME body part		DATA PAYLOAD		
MIME-part-body	As described in Table 6.1.3.3.3-3			

Table 6.1.3.3.3-2: MCDATA-Info (Table 6.1.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_grp

Table 6.1.3.3.3-3: DATA PAYLOAD (Table 6.1.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp

Table 6.1.3.3.3-4: SIP MESSAGE (step 4, Table 6.1.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.3.3.3-5			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-body	As described in Table 6.1.3.3.3-6			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.3.3.3-5: MCDATA-Info (Table 6.1.3.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.1.3.3.3-6: SDS NOTIFICATION (Table 6.1.3.3.3-4)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.3.3.3-7: SIP 200 (OK) (step 5, Table 6.1.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.4 On-network / Short Data Service (SDS) / Standalone SDS Using Signalling Control Plane / Group Standalone SDS / Client Terminated (CT)

6.1.4.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a standalone group SDS message with a disposition request of
"DELIVERY" }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message and sends a SIP MESSAGE
message with a disposition notification of "DELIVERED" and renders the contents of the Payload IE to
the MCDATA User }
          }
```

6.1.4.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.2.2.2, 9.2.1.2, 9.2.1.3, 12.2.1.1, 6.2.3.1, 6.2.4.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.2.2.2]

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

…

3) if the SIP MESSAGE request contains an application/mikey MIME body containing a MIKEY-SAKKE I_MESSAGE:

a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

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 subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to exchange end-to-end secure message.

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 MCData 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.

[TS 24.282, clause 9.2.1.2]

When a MCData client has received a SIP request containing:

- an application/vnd.3gpp.mcdata-signalling MIME body as specified in subclause E.1; and

- an application/vnd.3gpp.mcdata-payload MIME body as specified in subclause E.2;

the MCData Client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body;

2) shall decode the contents of the application/vnd.3gpp.mcdata-payload MIME body;

   …

5) shall identify the number of Payload IEs in the DATA PAYLOAD message from the Number of payloads IE in the DATA PAYLOAD message;

6) if the SDS SIGNALLING PAYLOAD message does not contain an Application ID IE:

   a) shall determine that the payload contained in the DATA PAYLOAD message is for user consumption

   b) may notify the MCData user; and

   c) shall render the contents of the Payload IE(s) to the MCData user;

7) if the SDS SIGNALLING PAYLOAD message contains an Application ID IE:

   a) shall determine that the payload contained in the DATA PAYLOAD message is not for user consumption,

   b) shall not notify the MCData user;

   c) if the Application ID value is unknown, shall discard the SDS message; and

   d) if the Application ID value is known, shall deliver the contents of the Payload IE(s) to the identified application;

   NOTE 1: If required, the MCData client decrypts the Payload IEs before rendering the SDS message to the user or delivering the SDS message to the application.

   …

   NOTE 3: User consent is not required before accepting the data.

8) may store the message payload in local storage along with the Conversation ID, Message ID, InReplyTo message ID and Date and time; and

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

[TS 24.282, clause 9.2.1.3]

To handle the disposition requests, the MCData 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).

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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;

…

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

[TS 24.282, clause 6.2.3.1]

In order to generate an SDS notification, the MCData 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 MCData client:

1) if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED" 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

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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 MCData function serving the MCData user.

6.1.4.3   Test description

6.1.4.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be large enough to allow the sending of the standalone SDS message using the signalling plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.4.3.2 Test procedure sequence

Table 6.1.4.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone group SDS message with a disposition of "DELIVERY"	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	SIP MESSAGE	1	P
4	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
5	Check: Does the UE (MCDATA client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P

6.1.4.3.3 Specific message contents

Table 6.1.4.3.3-1: SIP MESSAGE (step 1, Table 6.1.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.4.3.3-2			
MIME body part		DATA PAYLOAD		
MIME-part-body	MCData-Info as described in Table 6.1.4.3.3-3			

Table 6.1.4.3.3-2: MCDATA-Info (Table 6.1.4.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
mcdata-calling-user-id	not present			
mcdata-called-party-id	not present			

Table 6.1.4.3.3-4: DATA PAYLOAD (Table 6.1.4.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp

Table 6.1.4.3.3-5: SIP 200 (OK) (step 2, Table 6.1.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.4.3.3-6: SIP MESSAGE (step 3, Table 6.1.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCDATA Info		
MIME-part-headers	As described in Table 6.1.4.3.3-7			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-body	As described in Table 6.1.4.3.3-8			

Table 6.1.4.3.3-7: MCDATA-Info (Table 6.1.4.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.1.4.3.3-8: SDS NOTIFICATION (Table 6.1.4.3.3-6)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

6.1.5 On-network / Short Data Service (SDS) / Standalone SDS Using Media Plane / One-to-one Standalone SDS / Client Originated (CO)

6.1.5.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a one-to-one standalone SDS message using the media plane}
    then { UE (MCDATA Client) sends a request to establish an MSRP connection via a SIP INVITE
message and then responds to the SIP 200 (OK) message with a SIP ACK message }
        }
```

(2)

```
with { UE (MCDATA Client) having requested the establishment of a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives a SIP 200 (OK) message with the a=setup attribute set to
"passive"  from the SS (MCDATA server) }
```

```
      then { UE (MCDATA Client) sends a blank MSRP SEND message to bind the MSRP connection and then
sends the one-to-one standalone SDS message via a MSRP SEND message with a disposition of "DELIVERY"
}
            }
```

(3)

```
with { UE (MCDATA Client) having sent a one-to-one standalone SDS message using the media plane }
ensure that {
  when { UE (MCDATA Client receives a MSRP 200 (OK) message in response to the last MSRP SEND
message indicating that the standalone SDS message has been successfully transferred }
    then { UE (MCDATA Client) sends a SIP BYE message }
            }
```

(4)

```
with { UE (MCDATA Client) having sent a one-to-one standalone SDS message using the media plane with
a disposition of "DELIVERY" }
ensure that {
  when { UE (MCDATA Client receives a disposition response via a SIP MESSAGE message from the SS
(MCDATA Server }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
            }
```

6.1.5.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.3.2.3, 9.2.3.2.1, 13.2.2.2.2.1, 12.2.1.2, TS 24.582 clauses 6.1.1.2.1, 6.1.1.2.2, 6.1.1.2.3, 6.1.1.2.4. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.3.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.sds 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" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) 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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) if a one-to-one standalone SDS message is to be sent:

   a) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18];

   b) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "one-to-one-sds"; and

    c) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

      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 MCData client using the MCData 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];

      vi) shall add the MCData ID of the originating MCData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26]; and

      vii)shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

…

9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

10)may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

11)shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.3.2.1; and

12)shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.1.2.

…

On receipt of an indication from the media plane indicating that the standalone SDS message has been successfully transferred, the MCData client shall:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5] with:

    a) Reason code set to "SIP";

    b) cause set to "200"; and

    c) text set to "transmission succeeded";

2) shall set the Request-URI to the MCData session identity to release; and

3) shall send a SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall interact with the media plane and indicate to terminate the session, as specified in 3GPP TS 24.582 [15].

[TS 24.282, clause 9.2.3.2.1]

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 MCData client:

1) shall include an "m=message" media-level section for the MCData media stream consisting of:

    a) the IP address and 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"; and

2) if end-to-end security is required for a one-to-one communication and the security context does not exist or if the existing security context has expired, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [45].

[TS 24.282, clause 13.2.2.2.2.1]

When the MCData client wants to release a MCData communication established over the media plane, the MCData client:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5];

2) shall set the Request-URI to the MCData session identity to be released; and

3) shall send the SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall release all media plane resources corresponding to the MCData communication being released.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

    "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

    "SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

[TS 24.582, clause 6.1.1.2.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the originating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

  3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

  4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client:

  1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

  2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

  3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4; and

  4. shall send the MSRP SEND request on the established MSRP connection.

  NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

If MSRP chunking is not used then on receipt of a 200 (OK) response, the MCData client shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

If MSRP chunking is used, the MCData client:

  1. shall send further MSRP SEND requests as necessary;

  2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

  3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

  1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

  2. shall indicate to MCData user that the SDS message could not be sent; and

  3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving an indication to terminate the session from the signalling plane, the MCData client:

  1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks and may indicate to MCData user that the SDS message could not be sent.

[TS 24.582, clause 6.1.1.2.2]

In order to generate an SDS signalling payload, the MCData client:

  1. shall generate an SDS SIGNALLING PAYLOAD message as specified in 3GPP TS 24.282 [8]; and

  2. shall include the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8]; and

When generating a an SDS SIGNALLING PAYLOAD message, the MCData client:

  1. shall generate a SDS SIGNALLING PAYLOAD message as defined in 3GPP TS 24.282 [8]. In the SDS SIGNALLING PAYLOAD message, the MCData client:

    a. may include and set the Disposition request type IE to:

      i. "DELIVERY", if only delivery disposition is requested;

      ii. "READ", if only read disposition is requested; or

      iii. "DELIVERY AND READ", if both delivery and read dispositions are requested;

  b. shall set Date and time IE to current UTC time;

  c. shall set Conversation ID IE to a universally unique message ID generated as per IETF RFC 4122 [10];

  d. shall set Message ID IE to a universally unique message ID generated as per IETF RFC 4122 [10];

  e. if indicated that the SDS message is in reply to another SDS message then, shall include the Reply ID IE set to the message identifier of the indicated SDS message; and

  f. if indicated that the target recipient of the SDS message is an application then, shall set Application Identifier IE to the application identifier.

[TS 24.582, clause 6.1.1.2.3]

In order to generate SDS data payload, the MCData client:

1. shall generate a DATA PAYLOAD message as specified in 3GPP TS 24.282 [8]; and

2. shall include the DATA PAYLOAD message in an application/vnd.3gpp.mcdata-payload MIME body as specified in 3GPP TS 24.282 [8].

When generating a DATA PAYLOAD message, the MCData client:

1. shall generate a SDS DATA PAYLOAD message as defined in 3GPP TS 24.282 [8]. In the SDS DATA PAYLOAD message, the MCData client:

  a. shall set Number of payloads IE to the total number of payloads being sent; and

  b. for each payload, shall include Payload IE. In the Payload IE:

      i. shall set Payload content type to "TEXT", or "BINARY", or "HYPERLINKS", or "LOCATION" according to the payload type; and

      ii. shall set Payload data IE to actual payload.

[TS 24.582, clause 6.1.1.2.4]

The MCData client shall take the procedures in subclause 6.4.1 into consideration when generating MSRP SEND messages.

The MCData client shall generate MSRP SEND for SDS message requests according to IETF RFC 4975 [11].

When generating an MSRP SEND for SDS message request containing an SDS SIGNALLING PAYLOAD message and an SDS DATA PAYLOAD message, the MCData client

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the first content type as Content-Type = "application/vnd.3gpp.mcdata-signalling";

3. shall set the first body of the MSRP SEND request to the generated SDS SIGNALLING PAYLOAD message;

4. shall set the second Content-Type as "application/vnd.3gpp.mcdata-payload"; and

5. shall set the second body of the MSRP SEND request to the generated SDS DATA PAYLOAD message.

When generating an MSRP SEND for SDS message request containing only an SDS DATA PAYLOAD message, the MCData client:

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the Content-Type as "application/vnd.3gpp.mcdata-payload"; and

3. shall set the body of the MSRP SEND request to the generated SDS DATA PAYLOAD message.

When generating an MSRP SEND for SDS message request containing only an SDS SIGNALLING PAYLOAD, the MCData client.

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the Content-Type as "application/vnd.3gpp.mcdata-signalling"; and

3. shall set the body of the MSRP SEND request to the generated SDS SIGNALLING PAYLOAD message.

6.1.5.3   Test description

6.1.5.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be small enough to allow the sending of the standalone SDS message using the media plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.5.3.2 Test procedure sequence

Table 6.1.5.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a one-to-one standalone SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCData Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCDATA Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	Check: Does the (MCDATA Client) send a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message?	-->	SIP BYE	3	P
9	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-

-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	SS sends a disposition notification type of "DELIVERED" in response to the standalone one-to-one SDS message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P

6.1.5.3.3 Specific message contents

Table 6.1.5.3.3-1: SIP INVITE (step 2, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition MCDATA, MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.5.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.5.3.3-3			
MIME body part	Not present	MIKEY message		

Table 6.1.5.3.3-2: SDP for SIP INVITE (Table 6.1.5.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3, condition MCD_1to1

Table 6.1.5.3.3-3: MCDATA-Info (Table 6.1.5.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_1to1

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Table 6.1.5.3.3-4: SIP 200 (OK) (step 3, Table 6.1.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.5.3.3-5			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.5.3.3-3			

Table 6.1.5.3.3-5: SDP for SIP 200 (OK) (Table 6.1.5.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup	RFC 6135 [x] RFC 4145 [x]	
role	"passive"			

Table 6.1.5.3.3-6: MSRP SEND (step 7a1, Table 6.1.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.5.3.3-7			

Table 6.1.5.3.3-7: Data Payload (Table 6.1.5.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1

Table 6.1.5.3.3-8: MSRP SEND (step 7b1, Table 6.1.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.5.3.3-7			

Table 6.1.5.3.3-9: MSRP SEND (step 7b3, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.5.3.3-7			

Table 6.1.5.3.3-10: SIP BYE (step 8, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			
Reason			RFC 3326 [X]	
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.1.5.3.3-11: SIP 200 (OK) (step 9, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.5.3.3-12: SIP MESSAGE (step 10, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.5.3.3-13			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling "			
MIME-part-body	As described in Table 6.1.5.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.5.3.3-13: MCDATA-Info (Table 6.1.5.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User _A			
mcdata-client-id	not present			

Table 6.1.5.3.3-14: SDS NOTIFICATION (Table 6.1.5.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.5.3.3-15: SIP 200 (OK) (step 11, Table 6.1.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.6 On-network / Short Data Service (SDS) / Standalone SDS Using Media Plane / One-to-one Standalone SDS / Client Terminated (CT)

6.1.6.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }

```
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a standalone one-to-one SDS message using
the media plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
              }
```

(2)

```
with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a standalone
one-to-one SDS message using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message from the SS (MCDATA Server) }
    then { UE (MCDATA Client) responds with an MSRP 200 (OK) message and if the MSRP SEND message is
not blank, renders the contents of the Payload IE to the MCDATA User and sends a SIP MESSAGE message
with a disposition notification of "DELIVERED" }
              }
```

(3)

```
with { UE (MCDATA Client) having responded to the MSRP SEND message from the SS (MCDATA server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message to release communications }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message }
              }
```

6.1.6.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.3.2.4, 9.2.3.2.2, 13.2.2.2.2.2, 9.2.1.3, 12.2.1.1, 6.2.4.1, 6.2.3.1, TS 24.582 clauses 6.1.1.3.1, 6.1.1.3.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.3.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

    a) MCData client does not have enough resources to handle the call; or

    b) any other reason outside the scope of this specification;

    and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

    a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

    b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

    c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

    d) if authentication version verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

   ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

  NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

 3) may display to the MCData user the MCData ID of the inviting MCData user and the type of SDS request;

 4) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

 5) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

 6) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

 7) shall include the g.3gpp.mcdata.sds media feature tag in the Contact header field of the SIP 200 (OK) response;

 8) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in the Contact header field of the SIP 200 (OK) response;

 9) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.3.2.2; and

 10) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

  On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

 1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.1.3.

[TS 24.282, clause 9.2.3.2.2]

When the MCData client receives an initial SDP offer for an MCData standalone SDS, the MCData client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [5] and IETF RFC 4975 [17].

When composing an SDP answer, the MCData client:

 1) shall include an "m=message" media-level section for the accepted MCData 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 according to IETF RFC 6135 [19].

[TS 24.282, clause 13.2.2.2.2.2]

Upon receiving a SIP BYE request, the MCData client:

 1) shall send SIP 200 (OK) response towards MCData server according to 3GPP TS 24.229 [5]; and

 2) shall release all media plane resources corresponding to the MCData communication being released.

NOTE: Partially received data can be stored and processed.

[TS 24.282, clause 9.2.1.3]

To handle the disposition requests, the MCData 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 MCData 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 MCData 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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;

2) when sending FD messages, FD disposition notifications or FD media storage function discovery messages:

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 containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" 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.fd" (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 MCData function serving the MCData user.

[TS 24.282, clause 6.2.3.1]

In order to generate an SDS notification, the MCData 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 MCData 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

9) if the SDS message was destined for an application, shall include 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.

[TS 24.582, clause 6.1.1.3.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the terminating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP connection is established, the MCData client:

1. on receipt of an MSRP request in an MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData standalone message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.1.3.2.

[TS 24.582, clause 6.1.1.3.2]

The MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body;

2. shall decode the contents of the application/vnd.3gpp.mcdata-payload MIME body;

3. if the SDS SIGNALLING PAYLOAD message contains a new Conversation ID, shall instantiate a new conversation with the Message ID in the SDS SIGNALLING PAYLOAD identifying the first message in the conversation thread;

4. if the SDS SIGNALLING PAYLOAD message contains an existing Conversation ID and:

    a. if the SDS SIGNALLING PAYLOAD message does not contain an InReplyTo Message ID, shall use the Message ID in the SDS SIGNALLING PAYLOAD to identify a new message in the existing conversation thread; and

    b. if the SDS 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 SDS SIGNALLING PAYLOAD and use the Message ID in the SDS SIGNALLING PAYLOAD to identify the new message;

5. shall identify the number of Payload IEs in the DATA PAYLOAD message from the Number of Payloads IE in the DATA PAYLOAD message;

6. if the SDS SIGNALLING PAYLOAD message does not contain an Application identifier IE:

    a. shall determine that the payload contained in the DATA PAYLOAD message is for user consumption;

    b. may notify the MCData user; and

    c. shall render the contents of the Payload IE(s) to the MCData user;

7. if the SDS SIGNALLING PAYLOAD message contains an Application identifier IE:

    a. shall determine that the payload contained in the DATA PAYLOAD message is not for user consumption;

    b. shall not notify the MCData user;

    c. if the Application identifier value is unknown, shall discard the SDS message; and

    d. if the Application identifier value is known, shall deliver the contents of the Payload IE(s) to the identified application; and

8. if SDS Disposition request type IE is present in the SDS SIGNALLING PAYLOAD message received in subclause 6.1.1.3.1 then, shall send a disposition notification as described in 3GPP TS 24.282 [8] subclause 9.2.1.3.

6.1.6.3   Test description

6.1.6.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be small enough to allow the sending of the standalone SDS message using the media plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.6.3.2 Test procedure sequence

Table 6.1.6.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone one-to-one SDS message using the media plane.	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "DELIVERY".	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	The SS (MCDATA Server) sends a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message.	<--	SIP BYE	-	-
9	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
10	Check: Does the UE (MCDATA client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
11	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	SIP MESSAGE	2	P
12	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-

6.1.6.3.3   Specific message contents

Table 6.1.6.3.3-1: SIP INVITE (step 1, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA, MCD_1to1, PRIVATE CALL					
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.6.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.6.3.3-3			
MIME body part	Not present	MIKEY message		

Table 6.1.6.3.3-2: SDP for SIP INVITE (Table 6.1.6.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3, condition MCD_1to1

Table 6.1.6.3.3-3: MCDATA-Info (Table 6.1.6.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_1to1					
mcdata-info				
mcdata-Params				
mcdata-client-id	not present			

Table 6.1.6.3.3-4: SIP 200 (OK) (step 2, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA					
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.6.3.3-5			
MIME body part	not present	MCData Info		

Table 6.1.6.3.3-5: SDP for SIP 200 (OK) (Table 6.1.6.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.6.3.3-6: MSRP SEND (step 6, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.6.3.3-7			

Table 6.1.6.3.3-7: Data Payload (Table 6.1.6.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1

Table 6.1.6.3.3-8: SIP BYE (step 8, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Reason				
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.1.6.3.3-9: SIP 200 (OK) (step 9, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.6.3.3-10: SIP MESSAGE (steps 11, Table 6.1.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, MCD_1to1				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part	not present	MCDATA Info		
MIME body part	not present	MIKEY message		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-body	As described in Table 6.1.6.3.3-9			

Table 6.1.6.3.3-11: SDS NOTIFICATION (Table 6.1.6.3.3-8)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

6.1.7   On-network / Short Data Service (SDS) / Standalone SDS Using Media Plane / Group Standalone SDS / Client Originated (CO)

6.1.7.1   Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a group standalone SDS message using the media plane}
    then { UE (MCDATA Client) sends a request to establish an MSRP connection via a SIP INVITE
message and then responds to the SIP 200 (OK) message with a SIP ACK message }
          }
```

(2)

```
with { UE (MCDATA Client) having requested the establishment of a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives a SIP 200 (OK) message with the a=setup attribute set to
"passive" }
    then { UE (MCDATA Client) sends a blank MSRP SEND message to bind the MSRP connection and then
sends the group standalone SDS message via a MSRP SEND message with a disposition of "DELIVERY" }
          }
```

(3)

```
with { UE (MCDATA Client) having sent a group standalone SDS message using the media plane }
ensure that {
  when { UE (MCDATA Client) receives a MSRP 200 (OK) message in response to the last MSRP SEND
message indicating that the standalone SDS message has been successfully transferred }
    then { UE (MCDATA Client) sends a SIP BYE message }
          }
```

(4)

```
with { UE (MCDATA Client) having sent a group standalone SDS message using the media plane with a
disposition of "DELIVERY" }
ensure that {
  when { UE (MCDATA Client) receives a disposition response via a SIP MESSAGE message }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
          }
```

6.1.7.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.3.2.3, 9.2.3.2.1, 13.2.2.2.2.1, 12.2.1.2, TS 24.582 clauses 6.1.1.2.1, 6.1.1.2.2, 6.1.1.2.3, 6.1.1.2.4. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.3.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.sds 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" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) 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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) if a one-to-one standalone SDS message is to be sent:

   a) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18];

   b) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "one-to-one-sds"; and

   c) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

      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 MCData client using the MCData 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];

      vi) shall add the MCData ID of the originating MCData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26]; and

      vii)shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

   …

9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

11) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.3.2.1; and

12) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.1.2.

…

On receipt of an indication from the media plane indicating that the standalone SDS message has been successfully transferred, the MCData client shall:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5] with:

    a) Reason code set to "SIP";

    b) cause set to "200"; and

    c) text set to "transmission succeeded";

2) shall set the Request-URI to the MCData session identity to release; and

3) shall send a SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall interact with the media plane and indicate to terminate the session, as specified in 3GPP TS 24.582 [15].

[TS 24.282, clause 9.2.3.2.1]

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 MCData client:

1) shall include an "m=message" media-level section for the MCData media stream consisting of:

    a) the IP address and 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"; and

2) if end-to-end security is required for a one-to-one communication and the security context does not exist or if the existing security context has expired, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [45].

[TS 24.282, clause 13.2.2.2.2.1]

When the MCData client wants to release a MCData communication established over the media plane, the MCData client:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5];

2) shall set the Request-URI to the MCData session identity to be released; and

3) shall send the SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall release all media plane resources corresponding to the MCData communication being released.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

"SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

"SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

[TS 24.582, clause 6.1.1.2.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the originating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

If MSRP chunking is not used then on receipt of a 200 (OK) response, the MCData client shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary;

2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

2. shall indicate to MCData user that the SDS message could not be sent; and

3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving an indication to terminate the session from the signalling plane, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks and may indicate to MCData user that the SDS message could not be sent.

[TS 24.582, clause 6.1.1.2.2]

In order to generate an SDS signalling payload, the MCData client:

1. shall generate an SDS SIGNALLING PAYLOAD message as specified in 3GPP TS 24.282 [8]; and

2. shall include the SDS SIGNALLING PAYLOAD message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8]; and

When generating a an SDS SIGNALLING PAYLOAD message, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD message as defined in 3GPP TS 24.282 [8]. In the SDS SIGNALLING PAYLOAD message, the MCData client:

    a. may include and set the Disposition request type IE to:

        i. "DELIVERY", if only delivery disposition is requested;

        ii. "READ", if only read disposition is requested; or

        iii. "DELIVERY AND READ", if both delivery and read dispositions are requested;

    b. shall set Date and time IE to current UTC time;

    c. shall set Conversation ID IE to a universally unique message ID generated as per IETF RFC 4122 [10];

    d. shall set Message ID IE to a universally unique message ID generated as per IETF RFC 4122 [10];

    e. if indicated that the SDS message is in reply to another SDS message then, shall include the Reply ID IE set to the message identifier of the indicated SDS message; and

    f. if indicated that the target recipient of the SDS message is an application then, shall set Application Identifier IE to the application identifier.

[TS 24.582, clause 6.1.1.2.3]

In order to generate SDS data payload, the MCData client:

1. shall generate a DATA PAYLOAD message as specified in 3GPP TS 24.282 [8]; and

2. shall include the DATA PAYLOAD message in an application/vnd.3gpp.mcdata-payload MIME body as specified in 3GPP TS 24.282 [8].

When generating a DATA PAYLOAD message, the MCData client:

1. shall generate a SDS DATA PAYLOAD message as defined in 3GPP TS 24.282 [8]. In the SDS DATA PAYLOAD message, the MCData client:

    a. shall set Number of payloads IE to the total number of payloads being sent; and

    b. for each payload, shall include Payload IE. In the Payload IE:

        i. shall set Payload content type to "TEXT", or "BINARY", or "HYPERLINKS", or "LOCATION" according to the payload type; and

        ii. shall set Payload data IE to actual payload.

[TS 24.582, clause 6.1.1.2.4]

The MCData client shall take the procedures in subclause 6.4.1 into consideration when generating MSRP SEND messages.

The MCData client shall generate MSRP SEND for SDS message requests according to IETF RFC 4975 [11].

When generating an MSRP SEND for SDS message request containing an SDS SIGNALLING PAYLOAD message and an SDS DATA PAYLOAD message, the MCData client

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the first content type as Content-Type = "application/vnd.3gpp.mcdata-signalling";

3. shall set the first body of the MSRP SEND request to the generated SDS SIGNALLING PAYLOAD message;

4. shall set the second Content-Type as "application/vnd.3gpp.mcdata-payload"; and

5. shall set the second body of the MSRP SEND request to the generated SDS DATA PAYLOAD message.

When generating an MSRP SEND for SDS message request containing only an SDS DATA PAYLOAD message, the MCData client:

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the Content-Type as "application/vnd.3gpp.mcdata-payload"; and

3. shall set the body of the MSRP SEND request to the generated SDS DATA PAYLOAD message.

When generating an MSRP SEND for SDS message request containing only an SDS SIGNALLING PAYLOAD, the MCData client.

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the Content-Type as "application/vnd.3gpp.mcdata-signalling"; and

3. shall set the body of the MSRP SEND request to the generated SDS SIGNALLING PAYLOAD message.

6.1.7.3   Test description

6.1.7.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be small enough to allow the sending of the standalone SDS message using the media plane.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

- The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.7.3.2   Test procedure sequence

Table 6.1.7.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a group standalone SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCDATA Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCData Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	Check: Does the (MCData Client) send a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message?	-->	SIP BYE	3	P
9	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-

-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "DELIVERED" in response to the standalone group SDS message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P

6.1.7.3.3 Specific message contents

Table 6.1.7.3.3-1: SIP INVITE (step 2, Table 6.1.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		**MCData Info**		
MIME-part-body	MCData-Info as described in Table 6.1.7.3.3-2			

Table 6.1.7.3.3-2: MCDATA-Info (Table 6.1.7.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_grp

Table 6.1.7.3.3-3: SIP 200 (OK) (step 3, Table 6.1.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		**SDP message**		
MIME-part-body	As described in Table 6.1.7.3.3-4			
MIME body part		**MCData Info**		
MIME-part-body	MCData-Info as described in Table 6.1.7.3.3-2			

Table 6.1.7.3.3-4: SDP for SIP 200 (OK) (Table 6.1.7.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.7.3.3-5: MSRP SEND (step 7a1, Table 6.1.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.7.3.3-6			

Table 6.1.7.3.3-6: Data Payload (Table 6.1.7.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp

Table 6.1.7.3.3-7: MSRP SEND (step 7b1, Table 6.1.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.7.3.3-6			

Table 6.1.7.3.3-8: MSRP SEND (step 7b3, Table 6.1.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.7.3.3-6			

Table 6.1.7.3.3-9: SIP BYE (step 8, Table 6.1.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			
Reason				
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.1.7.3.3-10: SIP 200 (OK) (step 9, Table 6.1.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.7.3.3-11: SIP MESSAGE (step 10, Table 6.1.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.1.7.3.3-12			
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling "			
MIME-part-body	As described in Table 6.1.7.3.3-13			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.1.7.3.3-12: MCDATA-Info (Table 6.1.7.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User _A			
mcdata-calling-user-id	px_MCDATA_ID_User _B			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.1.7.3.3-13: SDS NOTIFICATION (Table 6.1.7.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MSRP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MSRP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.7.3.3-14: SIP 200 (OK) (step 11, Table 6.1.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.8 On-network / Short Data Service (SDS) / Standalone SDS Using Media Plane / Group Standalone SDS / Client Terminated (CT)

6.1.8.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a standalone group SDS message using the
media plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
          }
```

(2)

```
with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a standalone
group SDS message using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message }
```

```
    then { UE (MCDATA Client) responds with an MSRP 200 (OK) message and if the MSRP SEND message is
not blank, renders the contents of the Payload IE to the MCDATA User and sends a SIP MESSAGE message
with a disposition notification of "DELIVERED" }
            }
```

(3)

```
with { UE (MCDATA Client) having responded to the MSRP SEND message from the SS (MCDATA server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message to release communications }
    then { UE (MCDATA Client) sends a SIP 200 (OK) message }
            }
```

6.1.8.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.3.2.4, 9.2.3.2.2, 13.2.2.2.2.2, 9.2.1.3, 12.2.1.1, 6.2.4.1, 6.2.3.1, TS 24.582 clauses 6.1.1.3.1, 6.1.1.3.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.3.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

   a) MCData client does not have enough resources to handle the call; or

   b) any other reason outside the scope of this specification;

   and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

   a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

   b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

   c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

   d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

      ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

   NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

3) may display to the MCData user the MCData ID of the inviting MCData user and the type of SDS request;

4) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

5) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

6) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

7) shall include the g.3gpp.mcdata.sds media feature tag in the Contact header field of the SIP 200 (OK) response;

8) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in the Contact header field of the SIP 200 (OK) response;

9) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.3.2.2; and

10) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.1.3.

[TS 24.282, clause 9.2.3.2.2]

When the MCData client receives an initial SDP offer for an MCData standalone SDS, the MCData client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [5] and IETF RFC 4975 [17].

When composing an SDP answer, the MCData client:

1) shall include an "m=message" media-level section for the accepted MCData 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 according to IETF RFC 6135 [19].

[TS 24.282, clause 13.2.2.2.2.2]

Upon receiving a SIP BYE request, the MCData client:

1) shall send SIP 200 (OK) response towards MCData server according to 3GPP TS 24.229 [5]; and

2) shall release all media plane resources corresponding to the MCData communication being released.

    NOTE: Partially received data can be stored and processed.

[TS 24.282, clause 9.2.1.3]

To handle the disposition requests, the MCData 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 MCData 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 MCData 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

    4) shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

    5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 6.2.4.1]

This subclause is referenced from other procedures.

In a SIP MESSAGE request, the MCData 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;

2) when sending FD messages, FD disposition notifications or FD media storage function discovery messages:

   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 containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" 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.fd" (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 MCData function serving the MCData user.

[TS 24.282, clause 6.2.3.1]

In order to generate an SDS notification, the MCData 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 MCData 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

9) if the SDS message was destined for an application, shall include 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.

[TS 24.582, clause 6.1.1.3.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the terminating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP connection is established, the MCData client:

1. on receipt of an MSRP request in an MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData standalone message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.1.3.2.

[TS 24.582, clause 6.1.1.3.2]

The MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body;

2. shall decode the contents of the application/vnd.3gpp.mcdata-payload MIME body;

3. if the SDS SIGNALLING PAYLOAD message contains a new Conversation ID, shall instantiate a new conversation with the Message ID in the SDS SIGNALLING PAYLOAD identifying the first message in the conversation thread;

4. if the SDS SIGNALLING PAYLOAD message contains an existing Conversation ID and:

   a. if the SDS SIGNALLING PAYLOAD message does not contain an InReplyTo Message ID, shall use the Message ID in the SDS SIGNALLING PAYLOAD to identify a new message in the existing conversation thread; and

   b. if the SDS 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 SDS SIGNALLING PAYLOAD and use the Message ID in the SDS SIGNALLING PAYLOAD to identify the new message;

5. shall identify the number of Payload IEs in the DATA PAYLOAD message from the Number of Payloads IE in the DATA PAYLOAD message;

6. if the SDS SIGNALLING PAYLOAD message does not contain an Application identifier IE:

    a. shall determine that the payload contained in the DATA PAYLOAD message is for user consumption;

    b. may notify the MCData user; and

    c. shall render the contents of the Payload IE(s) to the MCData user;

7. if the SDS SIGNALLING PAYLOAD message contains an Application identifier IE:

    a. shall determine that the payload contained in the DATA PAYLOAD message is not for user consumption;

    b. shall not notify the MCData user;

    c. if the Application identifier value is unknown, shall discard the SDS message; and

    d. if the Application identifier value is known, shall deliver the contents of the Payload IE(s) to the identified application; and

8. if SDS Disposition request type IE is present in the SDS SIGNALLING PAYLOAD message received in subclause 6.1.1.3.1 then, shall send a disposition notification as described in 3GPP TS 24.282 [8] subclause 9.2.1.3.

6.1.8.3   Test description

6.1.8.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

-   UE (MCDATA Client)

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

-   The <max-payload-size-sds-cplane-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], shall be small enough to allow the sending of the standalone SDS message using the media plane.

Preamble:

-   The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

-   The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

-   UE States at the end of the preamble

    -   The UE is in E-UTRA Registered, Idle Mode state.

    -   The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.8.3.2 Test procedure sequence

Table 6.1.8.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone group SDS message using the media plane	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "DELIVERY".	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	The SS (MCDATA Server) sends a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message.	<--	SIP BYE	-	-
9	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-
10	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
11	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	SIP MESSAGE	2	P
12	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.1.8.3.3 Specific message contents

Table 6.1.8.3.3-1: SIP INVITE (step 1, Table 6.1.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.8.3.3-2			

Table 6.1.8.3.3-2: MCDATA-Info (Table 6.1.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_grp

Table 6.1.8.3.3-3: SIP 200 (OK) (step 2, Table 6.1.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.8.3.3-4			
MIME body part	not present	MCData Info		

Table 6.1.8.3.3-4: SDP for SIP INVITE (Table 6.1.8.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.8.3.3-5: MSRP SEND (step 6, Table 6.1.6.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.6.3.3-7			

Table 6.1.8.3.3-6: Data Payload (Table 6.1.6.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp

Table 6.1.8.3.3-7: SIP BYE (step 8, Table 6.1.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Reason			RFC 3326 [X]	
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.1.8.3.3-8: SIP 200 (OK) (step 9, Table 6.1.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.1.8.3.3-9: SIP MESSAGE (step 11, Table 6.1.8.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact				
ac-value	"g.3gpp.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Message-body				
MIME body part		MCDATA Info		
MIME-part-headers	As described in Table 6.1.8.3.3-10			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling "			
MIME-part-body	As described in Table 6.1.8.3.3-11			

Table 6.1.8.3.3-10: MCDATA-Info (Table 6.1.8.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.1.8.3.3-11: SDS NOTIFICATION (Table 6.1.8.3.3-7)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	Value/remark	Comment	Reference	Condition
SDS signalling payload message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

6.1.9 On-network / Short Data Service (SDS) / SDS Session / One-to-one SDS Session / Client Originated (CO)

6.1.9.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to initiate a one-to-one SDS session using the media plane}
    then { UE (MCDATA Client) sends a request to establish a one-to-one SDS session and a MSRP
connection via a SIP INVITE message **and** then responds to the SIP 200 (OK) message with a SIP ACK
message }
        }

(2)

with { UE (MCDATA Client) having received a SIP 200 (OK) message with the a=setup attribute set to
"passive" in response to a SIP INVITE message}
ensure that {
  when { UE (MCDATA Client) responds to the SIP 200 (OK) message with a SIP ACK message }
    then { UE (MCData Client) sends a blank MSRP SEND message to bind the MSRP connection **and** then
sends the one-to-one session SDS message via a MSRP SEND message with a disposition of "DELIVERY" }
        }

(3)

with { UE (MCDATA Client) having sent a one-to-one session SDS message using the media plane with a
disposition of "DELIVERY" }
ensure that {
  when { UE (MCDATA Client) receives a disposition response via a MSRP SEND message }
    then { UE (MCDATA Client) responds to the MSRP SEND message by sending a MSRP 200 (OK) message
and delivers the notification to the MCDATA User }
        }

(4)

```
with { UE (MCDATA Client) having established a one-to-one SDS session and a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message with a disposition of "READ" }
    then { UE (MCDATA Client) responds with a MSRP 200 (OK) message and then renders the contents of
the Payload IE to the MCDATA User and then sends a MSRP SEND message with a disposition notification
of "READ" }
            }
```

(5)

```
with { UE (MCDATA Client) having established a one-to-one SDS session }
ensure that {
  when { the MCDATA User requests to release the one-to-one SDS session }
    then { UE (MCDATA Client) sends a SIP BYE message }
            }
```

6.1.9.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.4.2.3, 9.2.4.2.1, 13.2.2.2.2.1, TS 24.582 clauses 6.1.2.2.1, 6.1.2.4, 6.1.2.5.1, 6.1.2.5.2, 6.1.2.5.3, 6.1.2.6. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.4.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.sds 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" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) 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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) if a one-to-one SDS session is requested:

   a) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18];

   b) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "one-to-one-sds-session"; and

   c) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

   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 MCData client using the MCData 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];

   vi) shall add the MCData ID of the originating MCData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26]; and

   vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

…

 9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

 NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

 10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

 11) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.4.2.1; and

 12) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

 1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

 2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

 3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.2.2.

[TS 24.282, clause 9.2.4.2.1]

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 MCData client:

 1) shall include an "m=message" media-level section for the MCData media stream consisting of:

  a) the port number;

  b) a protocol field value of "TCP/MSRP" or "TCP/TLS/MSRP" for TLS;

  c) an "a=sendrecv" attribute;

  d) an "a=path" attribute containing its own MSRP URI;

  e) set the content type as "a=accept-types:application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload"; and

  f) set the a=setup attribute as "actpass"; and

2) if end-to-end security is required for a one-to-one communication and the security context does not exist or if the existing security context has expired, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [45].

[TS 24.282, clause 13.2.2.2.2.1]

When the MCData client wants to release a MCData communication established over the media plane, the MCData client:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5];

2) shall set the Request-URI to the MCData session identity to be released; and

3) shall send the SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall release all media plane resources corresponding to the MCData communication being released.

[TS 24.582, clause 6.1.2.2.1]

Upon receiving an indication to establish MSRP connection for SDS session as the originating MCData client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData SDS message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.2.6.

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client can generate and send an SDS message as specified in subclause 6.1.2.4, or can generate and send an SDS disposition notification for a received SDS message as specified in subclause 6.1.2.5, if requested.

Received content and disposition requests shall be handled as specified in subclause 6.1.2.6.

[TS 24.582, clause 6.1.2.4]

An MCData client is allowed to send an one-to-one SDS message only if

1. the <allow-transmit-data> element of an <actions> element is present with a value "true" (see the MCData user profile document in 3GPP TS 24.484 [7]);

2. the size of the SDS message is less than or equal to the value of the <max-data-size-sds-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [7]; and

3. the size of the SDS message is less than or equal to the value of <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [7]).

An MCData client is allowed to send a group SDS message only if

1. the <mcdata-allow-transmit-data-in-this-group> element of an <action> element is present with a value "true" as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4];

2. the size of the SDS message is less than or equal to the value contained in the <mcdata-on-network-max-data-size-for-SDS> as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4]; and

3. the size of the SDS message is less than or equal to the value contained in the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document for this MCData group as specified in 3GPP TS 24.481 [11].

If the above mentioned conditions satisfy, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4, with the following clarification;

   a. shall set To-Path header according to the MSRP URI in the received SDP; and

4. shall send the MSRP SEND request on the established MSRP connection.

   NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

[TS 24.582, clause 6.1.2.5.1]

To send an SDS disposition notification, the MCData client:

1. shall generate a SDS NOTIFICATION as specified in subclause 6.1.2.5.2;

2. shall include the SDS NOTIFICATION in an MSRP SEND request as specified in subclause 6.1.2.5.3, with the following clarification;

   a. shall set To-Path header according to the MSRP URI in the received SDP; and

3. shall send the MSRP SEND request on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary.

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks; and

2. shall indicate to MCData user that the SDS message or the SDS disposition notification could not be sent.

[TS 24.582, clause 6.1.2.5.2]

In order to generate an SDS notification, the MCData client:

1. shall generate an SDS NOTIFICATION message as specified in 3GPP TS 24.282 [8]; and

2. shall include the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8].

When generating an SDS NOTIFICATION message, the MCData client:

1. if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED";

2. if sending a read notification, shall set the SDS disposition notification type IE as "READ";

3. if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ";

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";

5. shall set the Date and time IE to the current time;

6. shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message;

7. shall set the Message ID to the value of the Message ID that was received in the SDS message;

8. if the SDS message was destined for the user, shall not include an Application ID IE; and

9. if the SDS message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the SDS message.

[TS 24.582, clause 6.1.2.5.3]

The MCData client shall generate MSRP SEND requests for SDS disposition notification according to IETF RFC 4975 [11].

When generating an MSRP SEND request for SDS disposition notification containing an SDS NOTIFICATION message, the MCData client

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the content type as Content-Type = "application/vnd.3gpp.mcdata-signalling"; and

3. shall set the body of the MSRP SEND request to the generated SDS NOTIFICATION message.

[TS 24.582, clause 6.1.2.6]

Upon receiving an SDS message, the MCData client:

1. shall follow the procedure defined in subclause 6.1.1.3.2, with the following clarification:

   a. if SDS Disposition request type IE is present in the received SDS SIGNALLING PAYLOAD message then, shall send an SDS disposition notification as described in subclause 6.1.2.5.

Upon receiving an SDS disposition notification, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2. shall deliver the notification to the user or application.

6.1.9.3   Test description

6.1.9.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.9.3.2   Test procedure sequence

Table 6.1.9.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	**Message**		
1	Make the MCDATA User request to send a one-to-one session SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCDATA Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCDATA Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	SS (MCDATA Server) sends a disposition notification type of "DELIVERED" in response to the one-to-one SDS session message.	<--	MSRP SEND	-	-
9	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	3	P

10	Check: Does the UE (MCDATA Client) deliver the notification the MCData User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
11	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "READ".	<--	MSRP SEND	-	-
12	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	4	P
13	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P
14	Check: Does the UE (MCDATA Client) respond with a disposition notification of "READ"?	-->	MSRP SEND	4	P
15	SS (MCDATA Server) responds with a MSRP 200 (OK) message	<--	MSRP 200 (OK)	-	-
16	Make the MCDATA User request to release the one-to-one session SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
17	Check: Does the UE (MCDATA Client) send a SIP BYE message?	-->	SIP BYE	5	P
18	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.1.9.3.3   Specific message contents

Table 6.1.9.3.3-1: SIP INVITE (step 2, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA, MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.9.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.9.3.3-3			

Table 6.1.9.3.3-2: SDP for SIP INVITE (Table 6.1.9.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3, condition MCD_1to1

Table 6.1.9.3.3-3: MCDATA-Info (Table 6.1.9.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"one-to-one-sds-session"			
mcdata-client-id	not present			

Table 6.1.9.3.3-4: SIP 200 (OK) (step 3, Table 6.1.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.9.3.3-5			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.9.3.3-3			

Table 6.1.9.3.3-5: SDP for SIP 200 (OK) (Table 6.1.9.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.9.3.3-6: MSRP SEND (step 7a1, Table 6.1.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-7			

Table 6.1.9.3.3-7: Data Payload (Table 6.1.9.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1

Table 6.1.9.3.3-8: MSRP SEND (step 7b1, Table 6.1.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-7			

Table 6.1.9.3.3-9: MSRP SEND (step 7b3, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-7			

Table 6.1.9.3.3-10: MSRP SEND (step 8, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	not present"			
MIME-part-body	not present			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	not present			
MIME-part-body	not present			
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.9.3.3-11			

Table 6.1.9.3.3-11: SDS NOTIFICATION (Table 6.1.9.3.3-10)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.9.3.3-12: MSRP SEND (step 11, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-13			

Table 6.1.9.3.3-13: SDS SIGNALLING PAYLOAD (Table 6.1.9.3.3-12)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS disposition request type	"0010"	READ	TS 24.282 [87] clause 15.2.3	

Table 6.1.9.3.3-14: MSRP SEND (step 14, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME-Content-Type	not present"			
MIME-part-body	not present			
MIME body part	not present	SDS DATA PAYLOAD		
MIME-Content-Type	not present			
MIME-part-body	not present			
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.9.3.3-15			

Table 6.1.9.3.3-15: SDS NOTIFICATION (Table 6.1.9.3.3-14)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000011"	READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.9.3.3-16: SIP BYE (step 17, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			

Table 6.1.9.3.3-17: SIP 200 (OK) (step 18, Table 6.1.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.10 On-network / Short Data Service (SDS) / SDS Session / One-to-one SDS Session / Client Terminated (CT)

6.1.10.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }

```
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a one-to-one SDS session using the media
plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
           }
```

(2)

```
with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a one-to-one SDS
session using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message }
    then { UE (MCDATA Client) responds with an MSRP 200 (OK) message and if the MSRP SEND message is
not blank, renders the contents of the Payload IE to the MCDATA User and sends a SIP MESSAGE message
with a disposition notification of "DELIVERED" }
           }
```

(3)

```
with { UE (MCDATA Client) being in a one-to-one SDS session initiated by the SS (MCDATA server) }
ensure that {
  when { the MCDATA User requests to send a one-to-one SDS Session message with a disposition of
"READ" }
    then { UE (MCDATA Client) sends a one-to-one session SDS message via a MSRP SEND message with a
disposition of "DELIVERY" }
           }
```

(4)

```
with { UE (MCDATA Client) having sent a one-to-one SDS session message using the media plane with a
disposition of "READ" }
ensure that {
  when { UE (MCDATA Client) receives a disposition response via a MSRP SEND message }
    then { UE (MCDATA Client) responds to the MSRP SEND message by sending a MSRP 200 (OK) message
and delivers the notification to the MCDATA User }
           }
```

(5)

```
with { UE (MCDATA Client) being in a one-to-one SDS session initiated by the SS (MCDATA server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
           }
```

6.1.10.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.4.2.4, 9.2.4.2.2, 13.2.2.2.2.2, TS 24.582 clauses 6.1.2.3.1, 6.1.2.3.1, 6.1.2.4, 6.1.2.5.1, 6.1.2.5.2, 6.1.2.5.3, 6.1.2.6. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.4.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

    a) MCData client does not have enough resources to handle the call; or

    b) any other reason outside the scope of this specification;

    and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

4) may display to the MCData user the MCData ID of the inviting MCData user and the type of SDS request;

5) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

6) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

7) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

8) shall include the g.3gpp.mcdata.sds media feature tag in the Contact header field of the SIP 200 (OK) response;

9) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in the Contact header field of the SIP 200 (OK) response;

10) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.4.2.2; and

11) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.2.3.

To send a disposition notification after the media plane is released, the MCData client:

1) shall follow the procedures described in subclause 12.2.1.1.

[TS 24.282, clause 9.2.4.2.2]

When the MCData client receives an initial SDP offer for an MCData SDS session, the MCData client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [5] and IETF RFC 4975 [17].

When composing an SDP answer, the MCData client:

1) shall include an "m=message" media-level section for the accepted MCData 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) an "a=sendrecv" attribute;

    d) an "a=path" attribute containing its own MSRP URI;

    e) set the content type as a=accept-types: application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload; and

    f) set the a=setup attribute according to IETF RFC 6135 [19].

[TS 24.282, clause 13.2.2.2.2.2]

Upon receiving a SIP BYE request, the MCData client:

1) shall send SIP 200 (OK) response towards MCData server according to 3GPP TS 24.229 [5]; and

2) shall release all media plane resources corresponding to the MCData communication being released.

    NOTE: Partially received data can be stored and processed.

[TS 24.582, clause 6.1.2.3.1]

Upon receiving an indication to establish MSRP connection for SDS session as the terminating MCData client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData SDS message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.2.6.

On receiving MSRP 200 (OK) response to the first MSRP SEND request sent as "active" endpoint, or after sending MSRP 200 (OK) response to the first MSRP SEND request received as "passive" endpoint, the MCData client can generate and send an SDS message as specified in subclause 6.1.2.4, or can generate and send an SDS disposition notification for a received SDS message as specified in subclause 6.1.2.5, if requested.

Received content and disposition requests shall be handled as specified in subclause 6.1.2.6.

[TS 24.582, clause 6.1.2.4]

An MCData client is allowed to send an one-to-one SDS message only if

1. the <allow-transmit-data> element of an <actions> element is present with a value "true" (see the MCData user profile document in 3GPP TS 24.484 [7]);

2. the size of the SDS message is less than or equal to the value of the <max-data-size-sds-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [7]; and

3. the size of the SDS message is less than or equal to the value of <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [7]).

An MCData client is allowed to send a group SDS message only if

1. the <mcdata-allow-transmit-data-in-this-group> element of an <action> element is present with a value "true" as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4];

2. the size of the SDS message is less than or equal to the value contained in the <mcdata-on-network-max-data-size-for-SDS> as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4]; and

3. the size of the SDS message is less than or equal to the value contained in the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document for this MCData group as specified in 3GPP TS 24.481 [11].

If the above mentioned conditions satisfy, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4, with the following clarification;

    a. shall set To-Path header according to the MSRP URI in the received SDP; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

[TS 24.582, clause 6.1.2.5.1]

To send an SDS disposition notification, the MCData client:

1. shall generate a SDS NOTIFICATION as specified in subclause 6.1.2.5.2;

2. shall include the SDS NOTIFICATION in an MSRP SEND request as specified in subclause 6.1.2.5.3, with the following clarification;

    a. shall set To-Path header according to the MSRP URI in the received SDP; and

3. shall send the MSRP SEND request on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary.

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks; and

2. shall indicate to MCData user that the SDS message or the SDS disposition notification could not be sent.

[TS 24.582, clause 6.1.2.5.2]

In order to generate an SDS notification, the MCData client:

1. shall generate an SDS NOTIFICATION message as specified in 3GPP TS 24.282 [8]; and

2. shall include the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8].

When generating an SDS NOTIFICATION message, the MCData client:

1. if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED";

2. if sending a read notification, shall set the SDS disposition notification type IE as "READ";

3. if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ";

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";

5. shall set the Date and time IE to the current time;

6. shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message;

7. shall set the Message ID to the value of the Message ID that was received in the SDS message;

8. if the SDS message was destined for the user, shall not include an Application ID IE; and

9. if the SDS message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the SDS message.

[TS 24.582, clause 6.1.2.5.3]

The MCData client shall generate MSRP SEND requests for SDS disposition notification according to IETF RFC 4975 [11].

When generating an MSRP SEND request for SDS disposition notification containing an SDS NOTIFICATION message, the MCData client

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the content type as Content-Type = "application/vnd.3gpp.mcdata-signalling"; and

3. shall set the body of the MSRP SEND request to the generated SDS NOTIFICATION message.

[TS 24.582, clause 6.1.2.6]

Upon receiving an SDS message, the MCData client:

1. shall follow the procedure defined in subclause 6.1.1.3.2, with the following clarification:

    a. if SDS Disposition request type IE is present in the received SDS SIGNALLING PAYLOAD message then, shall send an SDS disposition notification as described in subclause 6.1.2.5.

Upon receiving an SDS disposition notification, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2. shall deliver the notification to the user or application.

6.1.10.3   Test description

6.1.10.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.10.3.2 Test procedure sequence

Table 6.1.10.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a one-to-one SDS session using the media plane	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "DELIVERY".	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	MSRP SEND	2	P
9	SS (MCDATA Server) responds with a MSRP 200 (OK) message	<--	MSRP 200 (OK)	-	-
10	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCData user? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
11	Make the MCDATA User request to send a one-to-one session SDS message over the media plane with a disposition notification type of "READ". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: Steps 12a1 - 12b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
12a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "READ"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
12a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 12b1-12b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
12b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "READ" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
12b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-

12b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "READ" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
12b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
13	SS (MCDATA Server) sends a disposition notification type of "READ" in response to the one-to-one SDS session message.	<--	MSRP SEND	-	-
14	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	4	P
15	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P
16	The SS (MCDATA Server) sends a SIP BYE message.	<--	SIP BYE	-	-
17	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	5	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.1.10.3.3 Specific message contents

Table 6.1.10.3.3-1: SIP INVITE (step 1, Table 6.1.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA, MCD_1to1, PRIVATE CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.10.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.10.3.3-3			
MIME body part	Not present	MIKEY message		

Table 6.1.10.3.3-2: SDP for SIP INVITE (Table 6.1.10.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3, condition MCD_1to1

Table 6.1.10.3.3-3: MCDATA-Info (Table 6.1.10.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdata-info				
mcdata-Params				
request-type	"one-to-one-sds-session"			
mcdata-request-uri	not present			

Table 6.1.10.3.3-4: SIP 200 (OK) (step 2, Table 6.1.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.10.3.3-5			
MIME body part	not present	MCData Info		

Table 6.1.10.3.3-5: SDP for SIP 200 (OK) (Table 6.1.10.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Information Element	Value/remark	Comment	Reference	Condition
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.10.3.3-6: MSRP SEND (step 6, Table 6.1.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	Value/remark	Comment	Reference	Condition
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-payload"			
MIME-part-body	As described in Table 6.1.10.3.3-7			

Table 6.1.10.3.3-7: Data Payload (Table 6.1.10.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1

Table 6.1.10.3.3-8: MSRP SEND (step 8, Table 6.1.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	not present"			
MIME-part-body	not present			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	not present			
MIME-part-body	not present			
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.10.3.3-9			

Table 6.1.10.3.3-9: SDS NOTIFICATION (Table 6.1.10.3.3-8)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.10.3.3-10: MSRP SEND (step 12a1, Table 6.1.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.10.3.3-11			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-12			

Table 6.1.10.3.3-11: SDS SIGNALLING PAYLOAD (Table 6.1.10.3.3-10)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.1-1				
SDS disposition request type	"0010"	READ		

Table 6.1.10.3.3-12: Data Payload (Table 6.1.10.3.3-10)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1

Table 6.1.10.3.3-13: MSRP SEND (step 12b1, Table 6.1.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.10.3.3-11			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-12			

Table 6.1.10.3.3-14: MSRP SEND (step 12b3, Table 6.1.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.10.3.3-11			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-12			

Table 6.1.10.3.3-15: MSRP SEND (step 13, Table 6.1.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	not present"			
MIME-part-body	not present			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	not present			
MIME-part-body	not present			
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.10.3.3-16			

Table 6.1.10.3.3-16: SDS NOTIFICATION (Table 6.1.10.3.3-15)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000011"	READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.10.3.3-17: SIP BYE (step 16, Table 6.1.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	

Table 6.1.10.3.3-18: SIP 200 (OK) (step 17, Table 6.1.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.11 On-network / Short Data Service (SDS) / SDS Session / Group SDS Session / Client Originated (CO)

6.1.11.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to initiate a group SDS session using the media plane}
    then { UE (MCDATA Client) sends a request to establish a group SDS session and a MSRP connection
via a SIP INVITE message and then responds to the SIP 200 (OK) message with a SIP ACK message }
          }
```

(2)

```
with { UE (MCDATA Client) having received a SIP 200 (OK) message with the a=setup attribute set to
"passive" }
ensure that {
  when { UE (MCDATA Client) responds to the SIP 200 (OK) message with a SIP ACK message }
    then { UE (MCDATA Client)  sends a blank MSRP SEND message to bind the MSRP connection and then
sends the group session SDS message via a MSRP SEND message with a disposition of "DELIVERY" }
          }
```

(3)

```
with { UE (MCDATA Client) having sent a group session SDS message using the media plane with a
disposition of "DELIVERY" }
ensure that {
  when { UE (MCDATA Client) receives a disposition response via a MSRP SEND message }
    then { UE (MCDATA Client) responds to the MSRP SEND message by sending a MSRP 200 (OK) message
and delivers the notification to the MCDATA User }
          }
```

(4)

```
with { UE (MCDATA Client) having established a group SDS session and a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message with a disposition of "DELIVERY AND READ"
}
    then { UE (MCDATA Client) responds with a MSRP 200 (OK) message }
          }
```

(5)

```
with { UE (MCDATA Client) having responded with a MSRP 200(OK) message to a group SDS session
message with a disposition of "DELIVERY AND READ" and timer TDU1 (delivery and read) not yet expired
}
ensure that {
  when { the UE (MCDATA Client) determines that the payload contained in the DATA PAYLOAD message is
for user consumption and before timer TDU1 (delivery and read) expires }
    then { the UE (MCDATA Client) renders the contents of the Payload IE to the MCDATA User and then
sends a MSRP SEND message with a disposition notification of "DELIVERED AND READ" }
          }
```

(6)

```
with { UE (MCDATA Client) having responded with a MSRP 200(OK) message to a group SDS session
message with a disposition of "DELIVERY AND READ" and the UE (MCDATA Client) not yet rendering the
contents of the Payload IE to the MCDATA User }
ensure that {
  when { timer TDU1 (delivery and read) expires }
    then { UE (MCDATA Client) sends a MSRP SEND message with a disposition notification of
"DELIVERED" and then renders the contents of the Payload IE to the MCDATA User and then sends a MSRP
SEND message with a disposition notification of "READ" }
         }
```

(7)

```
with { UE (MCDATA Client) having established a group SDS session }
ensure that {
  when { the MCDATA User requests to release the group SDS session }
    then { UE (MCDATA Client) sends a SIP BYE message }
          }
```

6.1.11.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.4.2.3, 9.2.4.2.1, 13.2.2.2.2.1, TS 24.582 clauses 6.1.2.2.1, 6.1.2.3.1, 6.1.2.4, 6.1.2.5.1, 6.1.2.5.2, 6.1.2.5.3, 6.1.2.6. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.4.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.sds 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" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) 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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

…

8) if a group SDS session is requested:

a) if the "/<x>/<x>/Common/MCData/AllowedSDS" leaf node present in the group document of the requested MCData group, configured on the group management client as specified in 3GPP TS 24.483 [42] is set to "false", shall reject the request to send SDS and not continue with the rest of the steps in this subclause; and

b) shall contain in an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "group-sds-session";

      ii) the <mcdata-request-uri> element set to the MCData group identity; and

      iii) the <mcdata-client-id> element set to the MCData client ID of the originating MCData client;

NOTE 1: The MCData client does not include the MCData ID of the originating MCData user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCData function.

9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

11) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.4.2.1; and

12) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.2.2.

[TS 24.282, clause 9.2.4.2.1]

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 MCData client:

1) shall include an "m=message" media-level section for the MCData media stream consisting of:

    a) the port number;

    b) a protocol field value of "TCP/MSRP" or "TCP/TLS/MSRP" for TLS;

    c) an "a=sendrecv" attribute;

    d) an "a=path" attribute containing its own MSRP URI;

    e) set the content type as "a=accept-types:application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload"; and

    f) set the a=setup attribute as "actpass"; and

2) if end-to-end security is required for a one-to-one communication and the security context does not exist or if the existing security context has expired, shall include the MIKEY-SAKKE I_MESSAGE in an "a=key-mgmt" attribute as a "mikey" attribute value in the SDP offer as specified in IETF RFC 4567 [45].

[TS 24.282, clause 13.2.2.2.2.1]

When the MCData client wants to release a MCData communication established over the media plane, the MCData client:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5];

2) shall set the Request-URI to the MCData session identity to be released; and

3) shall send the SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response to the SIP BYE request, the MCData client shall release all media plane resources corresponding to the MCData communication being released.

[TS 24.582, clause 6.1.2.2.1]

Upon receiving an indication to establish MSRP connection for SDS session as the originating MCData client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData SDS message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.2.6.

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client can generate and send an SDS message as specified in subclause 6.1.2.4, or can generate and send an SDS disposition notification for a received SDS message as specified in subclause 6.1.2.5, if requested.

Received content and disposition requests shall be handled as specified in subclause 6.1.2.6.

[TS 24.582, clause 6.1.2.3.1]

Upon receiving an indication to establish MSRP connection for SDS session as the terminating MCData client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData SDS message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.2.6.

On receiving MSRP 200 (OK) response to the first MSRP SEND request sent as "active" endpoint, or after sending MSRP 200 (OK) response to the first MSRP SEND request received as "passive" endpoint, the MCData client can generate and send an SDS message as specified in subclause 6.1.2.4, or can generate and send an SDS disposition notification for a received SDS message as specified in subclause 6.1.2.5, if requested.

Received content and disposition requests shall be handled as specified in subclause 6.1.2.6.

[TS 24.582, clause 6.1.2.4]

An MCData client is allowed to send an one-to-one SDS message only if

1. the <allow-transmit-data> element of an <actions> element is present with a value "true" (see the MCData user profile document in 3GPP TS 24.484 [7]);

2. the size of the SDS message is less than or equal to the value of the <max-data-size-sds-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [7]; and

3. the size of the SDS message is less than or equal to the value of <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [7]).

An MCData client is allowed to send a group SDS message only if

1. the <mcdata-allow-transmit-data-in-this-group> element of an <action> element is present with a value "true" as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4];

2. the size of the SDS message is less than or equal to the value contained in the <mcdata-on-network-max-data-size-for-SDS> as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4]; and

3. the size of the SDS message is less than or equal to the value contained in the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document for this MCData group as specified in 3GPP TS 24.481 [11].

If the above mentioned conditions satisfy, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4, with the following clarification;

   a. shall set To-Path header according to the MSRP URI in the received SDP; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

[TS 24.582, clause 6.1.2.5.1]

To send an SDS disposition notification, the MCData client:

1. shall generate a SDS NOTIFICATION as specified in subclause 6.1.2.5.2;

2. shall include the SDS NOTIFICATION in an MSRP SEND request as specified in subclause 6.1.2.5.3, with the following clarification;

a. shall set To-Path header according to the MSRP URI in the received SDP; and

3. shall send the MSRP SEND request on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary.

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks; and

2. shall indicate to MCData user that the SDS message or the SDS disposition notification could not be sent.

[TS 24.582, clause 6.1.2.5.2]

In order to generate an SDS notification, the MCData client:

1. shall generate an SDS NOTIFICATION message as specified in 3GPP TS 24.282 [8]; and

2. shall include the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8].

When generating an SDS NOTIFICATION message, the MCData client:

1. if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED";

2. if sending a read notification, shall set the SDS disposition notification type IE as "READ";

3. if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ";

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";

5. shall set the Date and time IE to the current time;

6. shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message;

7. shall set the Message ID to the value of the Message ID that was received in the SDS message;

8. if the SDS message was destined for the user, shall not include an Application ID IE; and

9. if the SDS message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the SDS message.

[TS 24.582, clause 6.1.2.6]

Upon receiving an SDS message, the MCData client:

1. shall follow the procedure defined in subclause 6.1.1.3.2, with the following clarification:

    a. if SDS Disposition request type IE is present in the received SDS SIGNALLING PAYLOAD message then, shall send an SDS disposition notification as described in subclause 6.1.2.5.

Upon receiving an SDS disposition notification, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2. shall deliver the notification to the user or application.

6.1.11.3   Test description

6.1.11.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.11.3.2 Test procedure sequence

Table 6.1.11.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a group session SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCDATA Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCDATA Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	SS (MCDATA Server) sends a disposition notification type of "DELIVERED" in response to the group SDS session message.	<--	MSRP SEND	-	-
9	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	3	P

10	Check: Does the UE (MCDATA Client) deliver the notification the MCData User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
11	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "DELIVERY AND READ". NOTE: Timer TDU1 (delivery and read) is started upon receipt of the MSRP SEND message that contains a "DELIVERY AND READ" disposition requests. Timer TDU1 (delivery and read)=120ms according to the default value defined in TS 24.282 [31].	<--	MSRP SEND	-	-
12	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	4	P
-	EXCEPTION: Steps 13a1-13b5 describe behaviour that depends on the timing of UE execution; the "lower case letter" identifies a step sequence that takes place if the UE receives a display notification before (steps 13a1 – 13a3) or after (steps 13b1 – 13b5) timer TDU1 (delivery and read) expires.	-	-	-	-
13a1	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCData User before the expiry of timer TDU1 (delivery and read)? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	5	P
13a2	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED AND READ"?	-->	MSRP SEND	5	P
13a3	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
13b1	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED" upon the expiration of timer TDU1 (delivery and read)?	-->	MSRP SEND	6	P
13b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
13b3	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	6	P
13b4	Check: Does the UE (MCDATA Client) respond with a disposition notification of "READ"?	-->	MSRP SEND	6	P
13b5	SS (MCDATA Server) responds with a MSRP 200 (OK) message	<--	MSRP 200 (OK)	-	-
14	Make the MCDATA User request to release the group session SDS message over the media plan. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
15	Check: Does the (MCDATA Client) send a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message?	-->	SIP BYE	7	P
16	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.1.11.3.3   Specific message contents

Table 6.1.11.3.3-1: SIP INVITE (step 2, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.11.3.3-2			

Table 6.1.11.3.3-2: MCDATA-Info (Table 6.1.11.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"group-sds-session"			

Table 6.1.11.3.3-3: SIP 200 (OK) (step 3, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.11.3.3-4			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.11.3.3-2			

Table 6.1.11.3.3-4: SDP for SIP 200 (OK) (Table 6.1.11.3.3-3)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.11.3.3-5: MSRP SEND (step 7a1, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.11.3.3-6			

Table 6.1.11.3.3-6: Data Payload (Table 6.1.11.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp

Table 6.1.11.3.3-7: MSRP SEND (step 7b1, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.11.3.3-6			

Table 6.1.11.3.3-8: MSRP SEND (step 7b3, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.11.3.3-6			

Table 6.1.11.3.3-9: MSRP SEND (step 8, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present"	SDS SIGNALLING PAYLOAD		
MIME body part	not present	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.11.3.3-10			

Table 6.1.11.3.3-10: SDS NOTIFICATION (Table 6.1.11.3.3-9)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.11.3.3-11: MSRP SEND (step 11, Table 6.1.11.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-payload"			
MIME-part-body	As described in Table 6.1.11.3.3-12			

Table 6.1.11.3.3-12: SDS SIGNALLING PAYLOAD (Table 6.1.11.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
SDS disposition request type	"0011"	DELIVERY AND READ	TS 24.282 [87] clause 15.2.3	

Table 6.1.11.3.3-13: MSRP SEND (step 13a2, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present"	SDS SIGNALLING PAYLOAD		
MIME body part	not present"	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.11.3.3-14			

Table 6.1.11.3.3-14: SDS NOTIFICATION (Table 6.1.11.3.3-13)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000100"	DELIVERED AND READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.11.3.3-15: MSRP SEND (step 13b1, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present"	SDS SIGNALLING PAYLOAD		
MIME body part	not present"	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.11.3.3-16			

Table 6.1.11.3.3-16: SDS NOTIFICATION (Table 6.1.11.3.3-15)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.11.3.3-17: MSRP SEND (step 13b4, Table 6.1.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.11.3.3-18			

Table 6.1.11.3.3-18: SDS NOTIFICATION (Table 6.1.11.3.3-17)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000011"	READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.11.3.3-19: SIP BYE (step 15, Table 6.1.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			

Table 6.1.11.3.3-20: SIP 200 (OK) (step 16, Table 6.1.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.1.12 On-network / Short Data Service (SDS) / SDS Session / Group SDS Session / Client Terminated (CT)

6.1.12.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a group SDS session using the media plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
        }

(2)

with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a group SDS session using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message }
    then { UE (MCDATA Client) responds with a MSRP 200 (OK) message **and** if the MSRP SEND message is not blank, renders the contents of the Payload IE to the MCDATA User **and** sends a MSRP SEND message with a disposition notification of "DELIVERED" }
        }

(3)

with { UE (MCDATA Client) being in a group SDS session initiated by the SS (MCDATA server) }
ensure that {
  when { the MCDATA User requests to send a group SDS Session message with a disposition of "DELIVERY AND READ" }
    then { UE (MCDATA Client) sends a group session SDS message via a MSRP SEND message with a disposition of "DELIVERY AND READ" }
        }

(4)

with { UE (MCDATA Client) having sent a group SDS session message using the media plane with a disposition of "DELIVERY AND READ" }
ensure that {
  when { UE (MCDATA Client) receives a disposition response via a MSRP SEND message }
    then { UE (MCDATA Client) responds to the MSRP SEND message by sending a MSRP 200 (OK) message **and** delivers the notification to the MCDATA User }
        }

(5)

with { UE (MCDATA Client) being in a group SDS session initiated by the SS (MCDATA Server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
        }

6.1.12.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 9.2.4.2.4, 9.2.4.2.2, 13.2.2.2.2.2, TS 24.582 clauses 6.1.2.3.1, 6.1.2.3.1, 6.1.2.4, 6.1.2.5.1, 6.1.2.5.2, 6.1.2.5.3, 6.1.2.6. The

following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 9.2.4.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

a) MCData client does not have enough resources to handle the call; or

b) any other reason outside the scope of this specification;

and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

4) may display to the MCData user the MCData ID of the inviting MCData user and the type of SDS request;

5) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

6) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

7) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

8) shall include the g.3gpp.mcdata.sds media feature tag in the Contact header field of the SIP 200 (OK) response;

9) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in the Contact header field of the SIP 200 (OK) response;

10) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 9.2.4.2.2; and

11) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 6.1.2.3.

To send a disposition notification after the media plane is released, the MCData client:

1) shall follow the procedures described in subclause 12.2.1.1.

[TS 24.282, clause 9.2.4.2.2]

When the MCData client receives an initial SDP offer for an MCData SDS session, the MCData client shall process the SDP offer and shall compose an SDP answer according to 3GPP TS 24.229 [5] and IETF RFC 4975 [17].

When composing an SDP answer, the MCData client:

1) shall include an "m=message" media-level section for the accepted MCData 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) an "a=sendrecv" attribute;

   d) an "a=path" attribute containing its own MSRP URI;

   e) set the content type as a=accept-types: application/vnd.3gpp.mcdata-signalling application/vnd.3gpp.mcdata-payload; and

   f) set the a=setup attribute according to IETF RFC 6135 [19].

[TS 24.282, clause 13.2.2.2.2.2]

Upon receiving a SIP BYE request, the MCData client:

1) shall send SIP 200 (OK) response towards MCData server according to 3GPP TS 24.229 [5]; and

2) shall release all media plane resources corresponding to the MCData communication being released.

   NOTE: Partially received data can be stored and processed.

[TS 24.582, clause 6.1.2.3.1]

Upon receiving an indication to establish MSRP connection for SDS session as the terminating MCData client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the MCData SDS message before delivering the content to the application; and

3. shall handle the received content as described in subclause 6.1.2.6.

On receiving MSRP 200 (OK) response to the first MSRP SEND request sent as "active" endpoint, or after sending MSRP 200 (OK) response to the first MSRP SEND request received as "passive" endpoint, the MCData client can generate and send an SDS message as specified in subclause 6.1.2.4, or can generate and send an SDS disposition notification for a received SDS message as specified in subclause 6.1.2.5, if requested.

Received content and disposition requests shall be handled as specified in subclause 6.1.2.6.

[TS 24.582, clause 6.1.2.4]

An MCData client is allowed to send an one-to-one SDS message only if

1. the <allow-transmit-data> element of an <actions> element is present with a value "true" (see the MCData user profile document in 3GPP TS 24.484 [7]);

2. the size of the SDS message is less than or equal to the value of the <max-data-size-sds-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [7]; and

3. the size of the SDS message is less than or equal to the value of <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [7]).

An MCData client is allowed to send a group SDS message only if

1. the <mcdata-allow-transmit-data-in-this-group> element of an <action> element is present with a value "true" as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4];

2. the size of the SDS message is less than or equal to the value contained in the <mcdata-on-network-max-data-size-for-SDS> as defined in the MCData group document for this MCData group as specified in 3GPP TS 24.481 [4]; and

3. the size of the SDS message is less than or equal to the value contained in the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document for this MCData group as specified in 3GPP TS 24.481 [11].

If the above mentioned conditions satisfy, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4, with the following clarification;

    a. shall set To-Path header according to the MSRP URI in the received SDP; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

[TS 24.582, clause 6.1.2.5.1]

To send an SDS disposition notification, the MCData client:

1. shall generate a SDS NOTIFICATION as specified in subclause 6.1.2.5.2;

2. shall include the SDS NOTIFICATION in an MSRP SEND request as specified in subclause 6.1.2.5.3, with the following clarification;

    a. shall set To-Path header according to the MSRP URI in the received SDP; and

3. shall send the MSRP SEND request on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary.

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks; and

2. shall indicate to MCData user that the SDS message or the SDS disposition notification could not be sent.

[TS 24.582, clause 6.1.2.5.2]

In order to generate an SDS notification, the MCData client:

1. shall generate an SDS NOTIFICATION message as specified in 3GPP TS 24.282 [8]; and

2. shall include the SDS NOTIFICATION message in an application/vnd.3gpp.mcdata-signalling MIME body as specified in 3GPP TS 24.282 [8].

When generating an SDS NOTIFICATION message, the MCData client:

1. if sending a delivered notification, shall set the SDS disposition notification type IE as "DELIVERED";

2. if sending a read notification, shall set the SDS disposition notification type IE as "READ";

3. if sending a delivered and read notification, shall set the SDS disposition notification type IE as "DELIVERED AND READ";

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";

5. shall set the Date and time IE to the current time;

6. shall set the Conversation ID to the value of the Conversation ID that was received in the SDS message;

7. shall set the Message ID to the value of the Message ID that was received in the SDS message;

8. if the SDS message was destined for the user, shall not include an Application ID IE; and

9. if the SDS message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the SDS message.

[TS 24.582, clause 6.1.2.5.3]

The MCData client shall generate MSRP SEND requests for SDS disposition notification according to IETF RFC 4975 [11].

When generating an MSRP SEND request for SDS disposition notification containing an SDS NOTIFICATION message, the MCData client

1. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

2. shall set the content type as Content-Type = "application/vnd.3gpp.mcdata-signalling"; and

3. shall set the body of the MSRP SEND request to the generated SDS NOTIFICATION message.

[TS 24.582, clause 6.1.2.6]

Upon receiving an SDS message, the MCData client:

1. shall follow the procedure defined in subclause 6.1.1.3.2, with the following clarification:

   a. if SDS Disposition request type IE is present in the received SDS SIGNALLING PAYLOAD message then, shall send an SDS disposition notification as described in subclause 6.1.2.5.

Upon receiving an SDS disposition notification, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2. shall deliver the notification to the user or application.

6.1.12.3   Test description

6.1.12.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

-   UE (MCDATA Client)

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

Preamble:

-   The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

-   The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

-   UE States at the end of the preamble

    -   The UE is in E-UTRA Registered, Idle Mode state.

    -   The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.1.12.3.2   Test procedure sequence

Table 6.1.12.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a group SDS session using the media plane	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message with a disposition notification type of "DELIVERY".	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	Check: Does the UE (MCDATA Client) respond with a disposition notification of "DELIVERED"?	-->	MSRP SEND	2	P
9	SS (MCDATA Server) responds with a MSRP 200 (OK) message	<--	MSRP 200 (OK)	-	-
10	Check: Does the UE (MCDATA Client) render the contents of the Payload IE to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
11	Make the MCDATA User request to send a group session SDS message over the media plane with a disposition notification type of "DELIVERY AND READ". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: Steps 12a1 - 12b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not."	-	-	-	-
12a1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY AND READ"? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
12a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 12b1-12b2 may be repeated multiple times depending on the size of the data being transmitted."	-	-	-	-
12b1	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY AND READ" and with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
12b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-

12b3	Check: Does the (MCDATA Client) send a MSRP SEND message with a disposition notification type of "DELIVERY AND READ" and with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
12b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
13	SS (MCDATA Server) sends a disposition notification type of "DELIVERED AND READ" in response to the standalone group SDS message.	<--	MSRP SEND	-	-
14	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	4	P
15	Check: Does the UE (MCDATA Client) deliver the notification the MCData User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P
16	The SS (MCDATA Server) sends a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message.	<--	SIP BYE	-	-
17	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	5	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.1.12.3.3   Specific message contents

Table 6.1.12.3.3-1: SIP INVITE (step 1, Table 6.1.12.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.1.12.3.3-2			

Table 6.1.12.3.3-2: MCDATA-Info (Table 6.1.12.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"group-sds-session"			

Table 6.1.12.3.3-3: SIP 200 (OK) (step 2, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.3.3	
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.1.12.3.3-4			
MIME body part	not present	MCData Info		

Table 6.1.12.3.3-4: SDP for SIP 200 (OK) (Table 6.1.12.3.3-3)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.1.12.3.3-5: MSRP SEND (step 6, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-payload"			
MIME-part-body	As described in Table 6.1.12.3.3-6			

Table 6.1.12.3.3-6: Data Payload (Table 6.1.12.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp

Table 6.1.12.3.3-7: MSRP SEND (step 8, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.12.3.3-8			

Table 6.1.12.3.3-8: SDS NOTIFICATION (Table 6.1.12.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.12.3.3-9: MSRP SEND (step 12a1, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.12.3.3-10			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-11			

Table 6.1.12.3.3-10: SDS SIGNALLING PAYLOAD (Table 6.1.12.3.3-9)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.8.1-1				
SDS disposition request type	"0011"	DELIVERY AND READ		

Table 6.1.12.3.3-11: Data Payload (Table 6.1.12.3.3-10)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp

Table 6.1.12.3.3-12: MSRP SEND (step 12b1, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.12.3.3-10			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-11			

Table 6.1.12.3.3-13: MSRP SEND (step 12b3, Table 6.1.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
MIME body part		SDS SIGNALLING PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.12.3.3-10			
MIME body part		SDS DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.1.9.3.3-11			

Table 6.1.12.3.3-14: MSRP SEND (step 13, Table 6.1.12.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type			TS 24.582 [32], clause 6.4	
media-type	"application/vnd.3gpp. mcdata-signalling"			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	SDS DATA PAYLOAD		
MIME body part		SDS NOTIFICATION		
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	As described in Table 6.1.12.3.3-15			

Table 6.1.12.3.3-15: SDS NOTIFICATION (Table 6.1.12.3.3-14)

Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000100"	DELIVERED AND READ	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.1.12.3.3-16: SIP BYE (step 16, Table 6.1.12.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	

Table 6.1.12.3.3-17: SIP 200 (OK) (step 17, Table 6.1.12.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.2 File Distribution

6.2.1 On-network / File Distribution (FD) / FD Using HTTP / One-to-one Standalone FD / Non-Mandatory Download / Before TDU2 Timers Expires / FILE DOWNLOAD REQUEST ACCEPTED / FILE DOWNLOAD COMPLETED / FILE DOWNLOAD REQUEST REJECTED / FILE DOWNLOAD DEFERRED / Client Originated (CO)

6.2.1.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is
unaware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) sends a SIP MESSAGE to find the URL of the Media Storage Function and
responds to a SIP MESSAGE that contains the URL of the Media Storage Function with a SIP 200 (OK)
message }
        }
```

(2)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is
aware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) uploads the file to the Media Storage Function via an HTTP POST
message and then sends the URL of the file location to the recipient via a SIP MESSAGE message }
        }
```

(3)

```
with { UE (MCDATA Client) having sent the URL of the file location to the recipient }
ensure that {
  when { UE (MCDATA Client) receives a FD notification via a SIP MESSAGE message }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message with a SIP 200 (OK) message and
delivers the notification to the MCDATA User }
        }
```

6.2.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.1.3.2, 10.2.2.1, 10.2.4.2.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.1.3.2]

To discover the absolute URI of the media storage function, the MCData client shall generate a SIP MESSAGE request towards the participating MCData function, 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) 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/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element containing the value "msf-disc-req";

4) if the upload of a file is for a group standalone FD request, shall include in an application/vnd.3gpp.mcdata-info+xml MIME body, the <mcdata-calling-group-id> element set to the required MCData group identity; and

NOTE 1: The absence of a group identity in the <mcdata-calling-group-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body implies that the MCData client intends to upload a file for a one-to-one FD request. In this case, the participating MCData function identifies the MCData ID of the user from the binding between the public user identity and the MCData ID.

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

On receipt of a "SIP MESSAGE request for absolute URI discovery response", the MCData client:

1) shall store the absolute URI found in the <mcdata-controller-psi> element;

2) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5]; and

3) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

[TS 24.282, clause 10.2.2.1]

If the media storage client is not aware of the absolute URI of the media storage function, the media storage client shall request the MCData client to discover the absolute URI associated with the media storage function by following the procedures in subclause 10.2.1.3.

The media storage client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To upload a file to media storage function, the media storage client:

1) shall generate an HTTP POST request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23];

2) shall set the Request-URI to the absolute URI identifying the resource on a media storage function;

3) shall set the Host header field to a hostname identifying the media storage function;

4) shall set the Content-Type header field to multipart/mixed and with a boundary delimiter parameter set to any chosen value;

5) if the file upload is for one-to-one file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "one-to-one-fd"; and

    b) the <mcdata-calling-user-id> element set to the originating MCData ID;

6) if the file upload is for group file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "group-fd";

    b) the <mcdata-request-uri> element set to the MCData group identity; and

    c) the <mcdata-calling-user-id> element set to the originating MCData ID;

7) if end-to-end security is required for a one-to-one communication, the MCData client protects the binary data representing the file and prefixes the protected binary data with security parameters as described in 3GPP TS 33.180 [26];

8) if

    i) end-to-end security is not required for a one-to-one communication, or

    ii) the file upload is for group file distribution;

    shall include the binary data representing the file with Content-Type field set to application/octet-stream and Content-Length field set to the file size; and

9) shall send the HTTP POST request towards the media storage function.

On receipt of a HTTP 201 Created containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function, then the media storage client shall store this information.

[TS 24.282, clause 10.2.4.2.1]

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 FD 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]; and

    b) an application/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-fd";

…

4) shall generate a standalone FD message as specified in subclause 6.2.2.2; and

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

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

    "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

    "SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

6.2.1.3   Test description

6.2.1.3.1   Pre-test conditions

System Simulator:

-    SS (MCDATA Server)

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

IUT:

-    UE (MCDATA Client)

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

-    A binary file is available for the UE (MCDATA Client) to upload.

     -    The binary file is smaller than the <max-data-size-fd-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [14].

     -    The binary file is smaller than the <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [14]).

     -    The binary file is smaller than the <max-data-size-auto-recv-bytes> element of the MCData service configuration document as specified in 3GPP TS 24.484 [14].

Preamble:

-    The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

-    TDU2 (FD non-mandatory download timer) is set to the default value of 60 seconds.

-    The <allow-transmit-data> element of an <actions> element is present in the MCData user profile document with the value "true" (see the MCData user profile document in 3GPP TS 24.484 [14]).

-    The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

-    UE States at the end of the preamble

     -    The UE is in E-UTRA Registered, Idle Mode state.

     -    The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.1.3.2   Test procedure sequence

Table 6.2.1.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a binary file that is larger than <max-data-size-auto-recv-bytes> via a standalone one-to-one FD message with a non-mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
-	EXCEPTION: Steps 2a1 through 2a4 describe behaviour that depends on UE implementation. Steps 2a1 through 2a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
2a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
2a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
2a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
2a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
4	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
5	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data? NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST ACCEPTED" via a SIP MESSAGE message before time TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
8	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
13	Make the MCDATA User request to send a binary file that is larger than <max-data-size-auto-recv-bytes> via a standalone one-to-one FD message with a non-mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: Steps 14a1 through 14a4 describe behaviour that depends on UE implementation. Steps 14a1 through 14a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
14a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
14a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
14a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
14a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
15	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
16	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
17	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data? NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	-->	SIP MESSAGE	2	P

18	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
19	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST REJECTED " via a SIP MESSAGE message before timer TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
20	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
21	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-		3	P
22	Make the MCDATA User request to send a binary file that is larger than <max-data-size-auto-recv-bytes> via a standalone one-to-one FD message with a non-mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-		-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-		-	-
-	EXCEPTION: Steps 23a1 through 23a4 describe behaviour that depends on UE implementation. Steps 23a1 through 23a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-		-	-
23a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
23a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
23a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
23a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
24	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
25	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
26	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data? NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	-->	SIP MESSAGE	2	P
27	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-

28	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD DEFERRED " via a SIP MESSAGE message before time TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
29	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
30	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
31	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST ACCEPTED" via a SIP MESSAGE message before time TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
32	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
33	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
34	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
35	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
36	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

6.2.1.3.3 Specific message contents

Table 6.2.1.3.3-1: SIP MESSAGE (steps 2a1, 14a1, 23a1, Table 6.2.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.1.3.3-2			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.1.3.3-2: MCDATA-Info (Table 6.2.1.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_Client_A			

Table 6.2.1.3.3-3: SIP 200 (OK) (steps 2a2, 14a2, 23a2, Table 6.2.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.1.3.3-4: SIP MESSAGE (steps 2a3, 14a3, 23a3, Table 6.2.1.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.1.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.1.3.3-5: MCDATA-Info (Table 6.2.1.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	not present			
mcdata-called-party-id	not present			
mcdata-client-id	not present			
mcdata-controller-psi	px_MCDATA_MSF	element set to the absolute URI of the media storage function		

Table 6.2.1.3.3-6: SIP 200 (OK) (steps 2a4, 8, 11, 14a4, 20, 23a4, 29, 32, 35, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.1.3.3-7: HTTP POST (steps 3, 15, 24, Table 6.2.1.3.2-1)

Derivation Path: RFC 2616 [26]				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Status-Line				
Request-URI				
uri	px_MCDATA_MSF	The absolute URI identifying the resource on a media storage function	TS 24.282 [31], clause 10.2.2.1	
Authorization		The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in TS 24.482 [12].	TS 24.482 [12], clause A.2.3	
authentication-scheme	"Bearer"			
b64token	Access token as assigned to the UE by Token Response			
P-Asserted-Identity			TS 24.482 [12], clause A.2.3 RFC 3325 [32]	
addr-spec				
user-info and host	px_MCDATA_ID_User _A	The URI of the UE		
Host				
	px_MCDATA_MSF_Ho stname	hostname identifying the media storage function	TS 24.282 [31], clause 10.2.2.1	
Content-Length	length of message body			
value	length of message-body			
Content-Type				
media-type	"multipart/mixed"		TS 24.282 [31], clause 10.2.2.1	
Message-body				
Authentication Request	not present			
Message-body				
Token request	not present			
Message-body				
KMS Initialize	not present			
Message-body				
KMS KeyProvision	not present			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-info+xml"			
MIME-part-body	As described in Table 6.2.1.3.3-8			
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.2.1	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.1.3.3-9			

Table 6.2.1.3.3-8: MCDATA-Info (Table 6.2.1.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.1.3.3-9: DATA PAYLOD (Table 6.2.1.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Security parameters and Payload	As described in Table 6.2.1.3.3-10	MCData Protected Payload Message		

Table 6.2.1.3.3-10: MCData Protected Payload Message (Table 6.2.1.3.3-9)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.1.3.3-11: HTTP 201 Created (steps 4, 16, 25, Table 6.2.1.3.2-1)

Derivation Path: RFC 2616 [26]				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Location				
absoluteURI	px_MCDATA_FD_FILE_LOC	The location of the uploaded file		
Content-Length	not present			
Content-Type	not present			
Message-body	not present			

Table 6.2.1.3.3-12: SIP MESSAGE (steps 5, 17, 26, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-13			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.1-1			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.1.3.3-13: MCDATA-Info (Table 6.2.1.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	not present			
mcdata-client-id	not present			

Table 6.2.1.3.3-14: SIP MESSAGE (steps 7, 31, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.1.3.3-16			

Table 6.2.1.3.3-15: MCDATA-Info (6.2.1.3.3-14)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.1.3.3-16: FD NOTIFICATION (Table 6.2.1.3.3-14)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.1.3.3-17: SIP MESSAGE (steps 10, 34, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.1.3.3-18			

Table 6.2.1.3.3-18: FD NOTIFICATION (Table 6.2.1.3.3-17)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.1.3.3-19: SIP MESSAGE (step 19, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.1.3.3-20			

Table 6.2.1.3.3-20: FD NOTIFICATION (Table 6.2.1.3.3-19)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000010"	FILE DOWNLOAD REQUEST REJECTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.1.3.3-21: SIP MESSAGE (step 28, Table 6.2.1.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.1.3.3-22			

Table 6.2.1.3.3-22: FD NOTIFICATION (Table 6.2.1.3.3-21)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000100"	FILE DOWNLOAD DEFERRED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.2 On-network / File Distribution (FD) / FD Using HTTP / One-to-one Standalone FD / Non-Mandatory Download / Before TDU2 Timers Expires / FILE DOWNLOAD REQUEST ACCEPTED / FILE DOWNLOAD COMPLETED / FILE DOWNLOAD REQUEST REJECTED / FILE DOWNLOAD DEFERRED / FD Client Terminated (CT)

6.2.2.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { UE (MCDATA Client) receives a SIP MESSAGE message for a standalone one-to-one FD message
with a non-mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message and notifies the MCDATA User
about the incoming FD request }
          }
```

(2)

```
with { UE (MCDATA Client) having received a standalone one-to-one FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to accept the FD request }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating acceptance of the FD request
and attempts to download the file with an HTTP GET message }
          }
```

(3)

```
with { MCDATA User having accepted an FD request with a disposition of "FILE DOWNLOAD COMPLETE
UPDATE" }
ensure that {
  when { UE (MCDATA Client) has successfully downloaded the file }
    then { UE (MCDATA Client) notifies the MCDATA User that the file has successfully downloaded and
generates an FD NOTIFICATION indicating the successful download of the file }
          }
```

(4)

```
with { UE (MCDATA Client) having received a standalone one-to-one FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to reject the FD request }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating the rejection of the FD
request }
          }
```

(5)

```
with { UE (MCDATA Client) having received a standalone one-to-one FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to defer the FD request before the expiration of the TDU2 (FD non-
mandatory download timer) timer }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating the deferral of the FD request
}
          }
```

6.2.2.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.4.2.2, 10.2.1.2.3, 12.2.1.1, 10.2.3.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.4.2.2]

Upon receipt of a "SIP MESSAGE request for FD using HTTP for terminating MCData client", the MCData client:

1) may reject the SIP MESSAGE request if there are not enough resources to handle the SIP MESSAGE request;

2) if the SIP MESSAGE request is rejected in step 1), shall respond towards the participating MCData function with a SIP 480 (Temporarily unavailable) response and skip the rest of the steps of this subclause;

3) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

4) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5]; and

5) shall handle the received message as specified in subclause 10.2.1.2.

[TS 24.282, clause 10.2.1.2.3]

The MCData client:

1) if the FD SIGNALLING PAYLOAD message does not contain an 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-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 2: 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 3: 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) void;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 10.2.3.1]

The media storage client on the MCData client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE, in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To download a file from the media storage function on the controlling MCData function, the media storage client on the MCData client:

1) shall generate an HTTP GET request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23] with a Request-URI set to an absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function; and

2) shall send the HTTP GET request towards the media storage function on the controlling MCData function.

On receipt of a HTTP 200 OK response containing the requested file, the MCData client shall notify the user or application that the file has been successfully downloaded.

6.2.2.3   Test description

6.2.2.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

- A binary file is available for the SS (MCDATA Server) to upload.

  - The binary file is smaller than the <max-data-size-fd-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [14].

  - The binary file is smaller than the <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [14]).

  - The binary file is smaller than the <max-data-size-auto-recv-bytes> element of the MCData service configuration document as specified in 3GPP TS 24.484 [14].

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- TDU2 (FD non-mandatory download timer) is set to the default value of 60 seconds.

- The <allow-transmit-data> element of an <actions> element is present in the MCData user profile document with the value "true" (see the MCData user profile document in 3GPP TS 24.484 [14]).

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.2.3.2 Test procedure sequence

Table 6.2.2.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone one-to-one FD message with a disposition of "FILE DOWNLOAD COMPLETED". NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
3	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
4	Make the MCDATA User request to accept the FD request before the TDU2 (FD non-mandatory download timer) timer expires. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
5	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating acceptance of the FD request?	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	Check: Does the UE (MCDATA Client) send a HTTP GET message to download the file?	-->	HTTP GET	2	P
8	SS (MCDATA Server) sends a HTTP 200 OK message containing the requested file.	<--	HTTP 200 OK	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) notify the MCDATA User of the successful download of the file? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating the file has been successfully downloaded?	-->	SIP MESSAGE	3	P
11	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-

-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
12	SS (MCDATA Server) initiates a standalone one-to-one FD message with a disposition of "FILE DOWNLOAD COMPLETED". NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	<--	SIP MESSAGE	-	-
13	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
14	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
15	Make the MCDATA User request to reject the FD request before the TDU2 (FD non-mandatory download timer) timer expires. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
16	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating rejection of the FD request?	-->	SIP MESSAGE	4	P
17	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
18	SS (MCDATA Server) initiates a standalone one-to-one FD message with a disposition of "FILE DOWNLOAD COMPLETED". NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	<--	SIP MESSAGE	-	-
19	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
20	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P

21	Make the MCDATA User defer the FD request before the TDU2 (FD non-mandatory download timer) timer expires. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
22	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating deferral of the FD request?	-->	SIP MESSAGE	5	P
23	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
24	Make the MCDATA User request to accept the deferred FD request. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
25	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating acceptance of the FD request?	-->	SIP MESSAGE	2	P
26	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
27	Check: Does the UE (MCDATA Client) send a HTTP GET message to download the file?	-->	HTTP GET	2	P
28	SS (MCDATA Server) sends a HTTP 200 OK message containing the requested file.	<--	HTTP 200 OK	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
29	Check: Does the UE (MCDATA Client) notify the MCDATA User of the successful download of the file? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
30	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating the file has been successfully downloaded?	-->	SIP MESSAGE	3	P
31	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.2.2.3.3 Specific message contents

Table 6.2.2.3.3-1: SIP MESSAGE (steps 1, 12, 18, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.2.3.3-2			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the SS as described in TS 36.579-1 [2] Table 5.5.3.13.2-1			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.2.3.3-2: MCData-Info (Table 6.2.2.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-user-id	px_MCDATA_ID_User_B			
mcdata-called-party-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.2.3.3-3: SIP 200 (OK) (steps 2, 13, 19, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.2.3.3-4: SIP MESSAGE (steps 5, 25, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-5			

Table 6.2.2.3.3-5: FD NOTIFICATION (Table 6.2.2.3.3-4)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.2.3.3-6: HTTP GET (steps 7, 27, Table 6.2.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Method	"GET"			
Request-URI				
uri	px_MCDATA_FD_FILE_LOC	The absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function	TS 24.282 [31] clause 10.2.3.1	
HTTP-Version	"HTTP/1.1"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.2.3.3-7: HTTP 200 (OK) (steps 8, 28, Table 6.2.2.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.6-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
media-type	"application/octet-stream"			
Message-body				
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.3.2	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.2.3.3-8			

Table 6.2.2.3.3-8: DATA PAYLOD (Table 6.2.1.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Security parameters and Payload	As described in Table 6.2.2.3.3-9	MCData Protected Payload Message		

Table 6.2.2.3.3-9: MCData Protected Payload Message (Table 6.2.2.3.3-8)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-2				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.2.3.3-10: SIP MESSAGE (steps 10, 30, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-11			

Table 6.2.2.3.3-11: FD NOTIFICATION (Table 6.2.2.3.3-10)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.2.3.3-12: SIP MESSAGE (step 16, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-13			

Table 6.2.2.3.3-13: FD NOTIFICATION (Table 6.2.2.3.3-12)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000010"	FILE DOWNLOAD REQUEST REJECTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.2.3.3-14: SIP MESSAGE (step 22, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-15			

Table 6.2.2.3.3-15: FD NOTIFICATION (Table 6.2.2.3.3-14)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000100"	FILE DOWNLOAD DEFERRED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.3 On-network / File Distribution (FD) / FD Using HTTP / Group Standalone FD / Non-Mandatory Download / After TDU2 Timers Expires / FILE DOWNLOAD REQUEST ACCEPTED / FILE DOWNLOAD COMPLETED / FILE DOWNLOAD REQUEST REJECTED / Client Originated (CO)

6.2.3.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a Group Standalone FD message with a non-mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is unaware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) sends a SIP MESSAGE to find the URL of the Media Storage Function **and** responds to a SIP MESSAGE that contains the URL of the Media Storage Function with a SIP 200 (OK) message }
        }

(2)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a Group Standalone FD message with a non-mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is aware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) uploads the file to the Media Storage Function via an HTTP POST message **and** then sends the URL of the file location to the recipient via a SIP MESSAGE message }
        }

(3)

```
with { UE (MCDATA Client) having sent the URL of the file location to the recipient }
ensure that {
  when { UE (MCDATA Client) receives a FD notification via a SIP MESSAGE message }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message with a SIP 200 (OK) message and
delivers the notification to the MCDATA User }
          }
```

6.2.3.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.1.3.2, 10.2.2.1, 10.2.4.2.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.1.3.2]

To discover the absolute URI of the media storage function, the MCData client shall generate a SIP MESSAGE request towards the participating MCData function, 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) 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/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element containing the value "msf-disc-req";

4) if the upload of a file is for a group standalone FD request, shall include in an application/vnd.3gpp.mcdata-info+xml MIME body, the <mcdata-calling-group-id> element set to the required MCData group identity; and

NOTE 1: The absence of a group identity in the <mcdata-calling-group-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body implies that the MCData client intends to upload a file for a one-to-one FD request. In this case, the participating MCData function identifies the MCData ID of the user from the binding between the public user identity and the MCData ID.

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

On receipt of a "SIP MESSAGE request for absolute URI discovery response", the MCData client:

1) shall store the absolute URI found in the <mcdata-controller-psi> element;

2) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5]; and

3) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

[TS 24.282, clause 10.2.2.1]

If the media storage client is not aware of the absolute URI of the media storage function, the media storage client shall request the MCData client to discover the absolute URI associated with the media storage function by following the procedures in subclause 10.2.1.3.

The media storage client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To upload a file to media storage function, the media storage client:

1) shall generate an HTTP POST request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23];

2) shall set the Request-URI to the absolute URI identifying the resource on a media storage function;

3) shall set the Host header field to a hostname identifying the media storage function;

4) shall set the Content-Type header field to multipart/mixed and with a boundary delimiter parameter set to any chosen value;

5) if the file upload is for one-to-one file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

   a) the <request-type> element set to a value of "one-to-one-fd"; and

   b) the <mcdata-calling-user-id> element set to the originating MCData ID;

6) if the file upload is for group file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

   a) the <request-type> element set to a value of "group-fd";

   b) the <mcdata-request-uri> element set to the MCData group identity; and

   c) the <mcdata-calling-user-id> element set to the originating MCData ID;

7) if end-to-end security is required for a one-to-one communication, the MCData client protects the binary data representing the file and prefixes the protected binary data with security parameters as described in 3GPP TS 33.180 [26];

8) if

   i) end-to-end security is not required for a one-to-one communication, or

   ii) the file upload is for group file distribution;

   shall include the binary data representing the file with Content-Type field set to application/octet-stream and Content-Length field set to the file size; and

9) shall send the HTTP POST request towards the media storage function.

On receipt of a HTTP 201 Created containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function, then the media storage client shall store this information.

[TS 24.282, clause 10.2.4.2.1]

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 FD 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]; and

   b) an application/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-fd";

…

4) shall generate a standalone FD message as specified in subclause 6.2.2.2; and

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

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

"SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

"SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

6.2.3.3 Test description

6.2.3.3.1 Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- A binary file is available for the UE (MCDATA Client) to upload.

  - The binary file is smaller than the <mcdata-on-network-max-data-size-for-FD> element in the MCData group document for the MCData group ID as specified in 3GPP TS 24.481 [11].

  - The binary file is smaller than the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document as specified in 3GPP TS 24.481 [11].

  - The binary file is smaller than the <mcdata-on-network-max-data-size-auto-recv> element of the MCData service configuration document as specified in 3GPP TS 24.484 [14].

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- Timer TDU2 (FD non-mandatory download timer) is configured to be 15 seconds.

- The <mcdata-allow-transmit-data-in-this-group> element of an <actions> element is present in the MCData group document with the value "true" as specified in 3GPP TS 24.481 [11].

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.3.3.2   Test procedure sequence

Table 6.2.3.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a binary file that is larger than <max-data-size-auto-recv-bytes> via a Group Standalone FD message with a non-mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
-	EXCEPTION: Steps 2a1 through 2a4 describe behaviour that depends on UE implementation. Steps 2a1 through 2a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
2a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
2a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
2a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
2a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
4	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
5	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data? NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST ACCEPTED" via a SIP MESSAGE message after time TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
8	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
13	Make the MCDATA User request to send a binary file that is larger than <max-data-size-auto-recv-bytes> via a Group Standalone FD message with a non-mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
-	EXCEPTION: Steps 14a1 through 14a4 describe behaviour that depends on UE implementation. Steps 14a1 through 14a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
14a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
14a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
14a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
14a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
15	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
16	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
17	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data? NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	-->	SIP MESSAGE	2	P

18	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
19	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST REJECTED " via a SIP MESSAGE message after timer TDU2 (FD non-mandatory download timer) expires.	<--	SIP MESSAGE	-	-
20	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
21	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

6.2.3.3.3 Specific message contents

Table 6.2.3.3.3-1: SIP MESSAGE (steps 2a1, 14a1, Table 6.2.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.3.3.3-2			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.3.3.3-2: MCDATA-Info (Table 6.2.3.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_Client _A			

Table 6.2.3.3.3-3: SIP 200 (OK) (steps 2a2, 14a2, Table 6.2.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.3.3.3-4: SIP MESSAGE (steps 2a3, 14a3, Table 6.2.3.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User _A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.3.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.3.3.3-5: MCDATA-Info (Table 6.2.3.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3					
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	not present			
mcdata-called-party-id	not present			
mcdata-client-id	not present			
mcdata-controller-psi	px_MCDATA_MSF	element set to the absolute URI of the media storage function		

Table 6.2.3.3.3-6: SIP 200 (OK) (steps 2a4, 8, 11, 14a4, 20, Table 6.2.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA					
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.3.3.3-7: HTTP POST (steps 3, 15, Table 6.2.3.3.2-1)

Derivation Path: RFC 2616 [26]				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Status-Line				
Request-URI				
uri	px_MCDATA_MSF	The absolute URI identifying the resource on a media storage function	TS 24.282 [31], clause 10.2.2.1	
Authorization		The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in TS 24.482 [12].	TS 24.482 [12], clause A.2.3	
authentication-scheme	"Bearer"			
b64token	Access token as assigned to the UE by Token Response			
P-Asserted-Identity			TS 24.482 [12], clause A.2.3 RFC 3325 [32]	
addr-spec				
user-info and host	px_MCDATA_ID_User _A	The URI of the UE		
Host				
	px_MCDATA_MSF_Ho stname	hostname identifying the media storage function	TS 24.282 [31], clause 10.2.2.1	
Content-Length	length of message body			
value	length of message-body			
Content-Type				
media-type	"multipart/mixed"		TS 24.282 [31], clause 10.2.2.1	
Message-body				
Authentication Request	not present			
Message-body				
Token request	not present			
Message-body				
KMS Initialize	not present			
Message-body				
KMS KeyProvision	not present			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-info+xml"			
MIME-part-body	As described in Table 6.2.3.3.3-8			
MIME body part		DATA PAYLOAD	TS 24.282 [87] clause 10.2.2.1	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.3.3.3-9			

Table 6.2.3.3.3-8: MCDATA-Info (Table 6.2.3.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_Group_A			
mcdata-calling-user-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.3.3.3-9: DATA PAYLOD (Table 6.2.3.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload				
Payload content type	"00000010"	BINARY		
Payload data	the file to be uploaded			

Table 6.2.3.3.3-10: HTTP 201 Created (steps 4, 16, Table 6.2.3.3.2-1)

Derivation Path: RFC 2616 [26]				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Location				
absoluteURI	px_MCDATA_FD_FILE_LOC	The location of the uploaded file		
Content-Length	not present			
Content-Type	not present			
Message-body	not present			

Table 6.2.3.3.3-11: SIP MESSAGE (steps 5, 17, Table 6.2.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.3.3.3-12			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.1-1			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.3.3.3-12: MCDATA-Info (Table 6.2.3.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_Group_A			
mcdata-calling-user-id	not present			
mcdata-client-id	px_MCDATA_ID_User_A			

Table 6.2.3.3.3-13: SIP MESSAGE (step 7, Table 6.2.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.3.3.3-15			

Table 6.2.3.3.3-14: MCDATA-Info (Table 6.2.3.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.3.3.3-15: FD NOTIFICATION (Table 6.2.3.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.3.3.3-16: SIP MESSAGE (steps 10, Table 6.2.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.3.3.3-17			

Table 6.2.3.3.3-17: FD NOTIFICATION (Table 6.2.3.3.3-16)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

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Table 6.2.3.3.3-18: SIP MESSAGE (step 19, Table 6.2.3.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.3.3.3-19			

Table 6.2.3.3.3-19: FD NOTIFICATION (Table 6.2.3.3.3-18)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000010"	FILE DOWNLOAD REQUEST REJECTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.4 On-network / File Distribution (FD) / FD Using HTTP / Group Standalone FD / Non-Mandatory Download / After TDU2 Timers Expires / FILE DOWNLOAD REQUEST ACCEPTED / FILE DOWNLOAD COMPLETED / FILE DOWNLOAD REQUEST REJECTED / Client Terminated (CT)

6.2.4.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { UE (MCDATA Client) receives a SIP MESSAGE message for a group standalone FD message with a
non-mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message and notifies the MCDATA User
about the incoming FD request }
        }
```

(2)

```
with { UE (MCDATA Client) having received a group standalone FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to accept the FD request }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating acceptance of the FD request
and attempts to download the file with an HTTP GET message }
        }
```

(3)

```
with { MCDATA User having accepted an FD request with a disposition of "FILE DOWNLOAD COMPLETE
UPDATE" }
```

```
ensure that {
  when { UE (MCDATA Client) has successfully downloaded the file }
    then { UE (MCDATA Client) notifies the MCDATA User that the file has successfully downloaded and
generates an FD NOTIFICATION indicating the successful download of the file }
          }
```

(4)

```
with { UE (MCDATA Client) having received a group standalone FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to reject the FD request }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating the rejection of the FD
request }
          }
```

(5)

```
with { UE (MCDATA Client) having received a group standalone FD message with a non-mandatory
download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
ensure that {
  when { the MCDATA User requests to defer the FD request before the expiration of the TDU2 (FD non-
mandatory download timer) timer }
    then { UE (MCDATA Client) generates an FD NOTIFICATION indicating the deferral of the FD request
}
          }
```

6.2.4.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.4.2.2, 10.2.1.2.3, 12.2.1.1.1, 10.2.3.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.4.2.2]

Upon receipt of a "SIP MESSAGE request for FD using HTTP for terminating MCData client", the MCData client:

1) may reject the SIP MESSAGE request if there are not enough resources to handle the SIP MESSAGE request;

2) if the SIP MESSAGE request is rejected in step 1), shall respond towards the participating MCData function with a SIP 480 (Temporarily unavailable) response and skip the rest of the steps of this subclause;

3) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

4) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5]; and

5) shall handle the received message as specified in subclause 10.2.1.2.

[TS 24.282, clause 10.2.1.2.3]

The MCData client:

1) if the FD SIGNALLING PAYLOAD message does not contain an 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-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 2: 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 3: 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) void;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 10.2.3.1]

The media storage client on the MCData client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE, in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To download a file from the media storage function on the controlling MCData function, the media storage client on the MCData client:

1) shall generate an HTTP GET request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23] with a Request-URI set to an absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function; and

2) shall send the HTTP GET request towards the media storage function on the controlling MCData function.

On receipt of a HTTP 200 OK response containing the requested file, the MCData client shall notify the user or application that the file has been successfully downloaded.

6.2.4.3   Test description

6.2.4.3.1   Pre-test conditions

System Simulator:

- -   SS (MCDATA Server)

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

- -   A binary file is available for the SS (MCDATA Server) to upload.

  - -   The binary file is smaller than the <mcdata-on-network-max-data-size-for-FD> element in the MCData group document for the MCData group ID as specified in 3GPP TS 24.481 [11].

  - -   The binary file is smaller than the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document as specified in 3GPP TS 24.481 [11].

  - -   The binary file is smaller than the <mcdata-on-network-max-data-size-auto-recv> element of the MCData service configuration document as specified in 3GPP TS 24.484 [14].

IUT:

- -   UE (MCDATA Client)

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

Preamble:

- -   The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- -   Timer TDU2 (FD non-mandatory download timer) is configured to be 15 seconds.

- -   The <mcdata-allow-transmit-data-in-this-group> element of an <actions> element is present in the MCData group document with the value "true" as specified in 3GPP TS 24.481 [11].

- -   The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- -   UE States at the end of the preamble

  - -   The UE is in E-UTRA Registered, Idle Mode state.

  - -   The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.4.3.2   Test procedure sequence

Table 6.2.4.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a group standalone FD message with a disposition of "FILE DOWNLOAD COMPLETED". NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
3	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
4	Make the MCDATA User request to accept the FD request after the TDU2 (FD non-mandatory download timer) timer expires. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
5	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating acceptance of the FD request?	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	Check: Does the UE (MCDATA Client) send a HTTP GET message to download the file?	-->	HTTP GET	2	P
8	SS (MCDATA Server) sends a HTTP 200 OK message containing the requested file.	<--	HTTP 200 OK	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) notify the MCDATA User of the successful download of the file? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating the file has been successfully downloaded?	-->	SIP MESSAGE	3	P

11	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
12	SS (MCDATA Server) initiates a group standalone FD message with a disposition of "FILE DOWNLOAD COMPLETED". NOTE: Timer TDU2 (FD non-mandatory download timer) starts on reception of the FD request via the SIP MESSAGE message.	<--	SIP MESSAGE	-	-
13	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
14	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
15	Make the MCDATA User request to reject the FD request after the TDU2 (FD non-mandatory download timer) timer expires. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
16	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating rejection of the FD request?	-->	SIP MESSAGE	4	P
17	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.2.4.3.3 Specific message contents

Table 6.2.4.3.3-1: SIP MESSAGE (steps 1, 12, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA					
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.4.3.3-2			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the SS as described in TS 36.579-1 [2] Table 5.5.3.13.2-1			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.4.3.3-2: MCData-Info (Table 6.2.4.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3					
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-called-party-id	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.4.3.3-3: SIP 200 (OK) (steps 2, 13, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.4.3.3-4: SIP MESSAGE (step 5, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-headers	As described in Table 6.2.4.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE as described in Table 6.2.4.3.3-6			

Table 6.2.4.3.3-5: MCDATA-Info (Table 6.2.4.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.4.3.3-6: FD NOTIFICATION (Table 6.2.4.3.3-4)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.4.3.3-7: HTTP GET (step 7, Table 6.2.4.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Method	"GET"			
Request-URI				
uri	px_MCDATA_FD_FILE_LOC	The absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function	TS 24.282 [31] clause 10.2.3.1	
HTTP-Version	"HTTP/1.1"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.4.3.3-8: HTTP 200 (OK) (step 8, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.4.6-1				
Content-Type				
media-type	"application/octet-stream"			
Message-body				
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.3.2	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.4.3.3-9			

Table 6.2.4.3.3-9: DATA PAYLOD (Table 6.2.1.3.3-8)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp				
Payload				
Payload content type	"00000010"	BINARY		
Payload data	the file to be downloaded			

Table 6.2.4.3.3-10: SIP MESSAGE (step 10, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-headers	As described in Table 6.2.4.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE as described in Table 6.2.4.3.3-11			

Table 6.2.4.3.3-11: FD NOTIFICATION (Table 6.2.4.3.3-10)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.4.3.3-12: SIP MESSAGE (step 18, Table 6.2.4.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-headers	As described in Table 6.2.4.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE as described in Table 6.2.4.3.3-13			

Table 6.2.4.3.3-13: FD NOTIFICATION (Table 6.2.4.3.3-12)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000010"	FILE DOWNLOAD REQUEST REJECTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.5 On-network / File Distribution (FD) / FD Using HTTP / One-to-one Standalone FD / Mandatory Download / With Disposition Request / Client Originated (CO)

6.2.5.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one FD message with a mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is unaware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) sends a SIP MESSAGE to find the URL of the Media Storage Function **and** responds to a SIP MESSAGE that contains the URL of the Media Storage Function with a SIP 200 (OK) message }
          }

(2)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a standalone one-to-one FD message with a mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" and the UE (MCDATA Client) is aware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) uploads the file to the Media Storage Function via an HTTP POST message **and** then sends the URL of the file location to the recipient via a SIP MESSAGE message }
          }

(3)

with { UE (MCDATA Client) having sent the URL of the file location to the recipient }
ensure that {

```
    when { UE (MCDATA Client) receives a FD notification via a SIP MESSAGE message }
      then { UE (MCDATA Client) responds to the SIP MESSAGE message with a SIP 200 (OK) message and
delivers the notification to the MCDATA User }
                }
```

6.2.5.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.1.3.2, 10.2.2.1, 10.2.4.2.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.1.3.2]

To discover the absolute URI of the media storage function, the MCData client shall generate a SIP MESSAGE request towards the participating MCData function, 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)   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/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element containing the value "msf-disc-req";

4)   if the upload of a file is for a group standalone FD request, shall include in an application/vnd.3gpp.mcdata-info+xml MIME body, the <mcdata-calling-group-id> element set to the required MCData group identity; and

NOTE 1:   The absence of a group identity in the <mcdata-calling-group-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body implies that the MCData client intends to upload a file for a one-to-one FD request. In this case, the participating MCData function identifies the MCData ID of the user from the binding between the public user identity and the MCData ID.

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

On receipt of a "SIP MESSAGE request for absolute URI discovery response", the MCData client:

1)   shall store the absolute URI found in the <mcdata-controller-psi> element;

2)   shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5]; and

3)   shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

[TS 24.282, clause 10.2.2.1]

If the media storage client is not aware of the absolute URI of the media storage function, the media storage client shall request the MCData client to discover the absolute URI associated with the media storage function by following the procedures in subclause 10.2.1.3.

The media storage client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [24].

NOTE 1:   The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2:   The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To upload a file to media storage function, the media storage client:

1)   shall generate an HTTP POST request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23];

2)   shall set the Request-URI to the absolute URI identifying the resource on a media storage function;

3) shall set the Host header field to a hostname identifying the media storage function;

4) shall set the Content-Type header field to multipart/mixed and with a boundary delimiter parameter set to any chosen value;

5) if the file upload is for one-to-one file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "one-to-one-fd"; and

    b) the <mcdata-calling-user-id> element set to the originating MCData ID;

6) if the file upload is for group file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "group-fd";

    b) the <mcdata-request-uri> element set to the MCData group identity; and

    c) the <mcdata-calling-user-id> element set to the originating MCData ID;

7) if end-to-end security is required for a one-to-one communication, the MCData client protects the binary data representing the file and prefixes the protected binary data with security parameters as described in 3GPP TS 33.180 [26];

8) if

    i) end-to-end security is not required for a one-to-one communication, or

    ii) the file upload is for group file distribution;

    shall include the binary data representing the file with Content-Type field set to application/octet-stream and Content-Length field set to the file size; and

9) shall send the HTTP POST request towards the media storage function.

On receipt of a HTTP 201 Created containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function, then the media storage client shall store this information.

[TS 24.282, clause 10.2.4.2.1]

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 FD 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]; and

    b) an application/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-fd";

…

4) shall generate a standalone FD message as specified in subclause 6.2.2.2; and

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

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

    "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

"SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

6.2.5.3   Test description

6.2.5.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-data-size-fd-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12] shall be large enough to allow the sending of the standalone FD message using HTTP.

- A binary file is available for the UE (MCDATA Client) to upload.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.5.3.2 Test procedure sequence

Table 6.2.5.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a binary file via a standalone one-to-one FD message with a mandatory download and with a disposition request of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
-	EXCEPTION: Steps 2a1 through 2a4 describe behaviour that depends on UE implementation. Steps 2a1 through 2a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
2a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
2a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
2a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
2a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
4	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
5	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data?	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST ACCEPTED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
8	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) deliver the notification to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-

10	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification to the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

6.2.5.3.3 Specific message contents

Table 6.2.5.3.3-1: SIP MESSAGE (step 2a1, Table 6.2.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.5.3.3-2			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.5.3.3-2: MCDATA-Info (Table 6.2.5.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_Client_A			

Table 6.2.5.3.3-3: SIP 200 (OK) (step 2a2, Table 6.2.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.5.3.3-4: SIP MESSAGE (step 2a3, Table 6.2.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.5.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.5.3.3-5: MCDATA-Info (Table 6.2.5.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	not present			
mcdata-called-party-id	not present			
mcdata-client-id	not present			
mcdata-controller-psi	px_MCDATA_MSF	element set to the absolute URI of the media storage function		

Table 6.2.5.3.3-6: SIP 200 (OK) (steps 2a4, 8, 11, Table 6.2.5.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.5.3.3-7: HTTP POST (step 3, Table 6.2.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: RFC 2616 [26]				
Status-Line				
Request-URI				
uri	px_MCDATA_MSF	The absolute URI identifying the resource on a media storage function	TS 24.282 [31], clause 10.2.2.1	
Authorization		The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in TS 24.482 [12].	TS 24.482 [12], clause A.2.3	
authentication-scheme	"Bearer"			
b64token	Access token as assigned to the UE by Token Response			
P-Asserted-Identity			TS 24.482 [12], clause A.2.3 RFC 3325 [32]	
addr-spec				
user-info and host	px_MCDATA_ID_User_A	The URI of the UE		
Host				
	px_MCDATA_MSF_Hostname	hostname identifying the media storage function	TS 24.282 [31], clause 10.2.2.1	
Content-Length	length of message body			
value	length of message-body			
Content-Type				
media-type	"multipart/mixed"		TS 24.282 [31], clause 10.2.2.1	
Message-body				
Authentication Request	not present			
Message-body				
Token request	not present			
Message-body				
KMS Initialize	not present			
Message-body				
KMS KeyProvision	not present			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	As described in Table 6.2.5.3.3-8			
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.2.1	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.5.3.3-9			

Table 6.2.5.3.3-8: MCDATA-Info (Table 6.2.5.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.5.3.3-9: DATA PAYLOD (Table 6.2.5.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1
Security parameters and Payload	As described in Table 6.2.5.3.3-10	MCData Protected Payload Message		

Table 6.2.5.3.3-10: MCData Protected Payload Message (Table 6.2.5.3.3-9)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-1
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.5.3.3-11: HTTP 201 Created (step 4, Table 6.2.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: RFC 2616 [26]
Location				
absoluteURI	px_MCDATA_FD_FILE_LOC	The location of the uploaded file		
Content-Length	not present			
Content-Type	not present			
Message-body	not present			

Table 6.2.5.3.3-12: SIP MESSAGE (step 5, Table 6.2.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.5.3.3-13			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	As described in Table 6.2.5.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.5.3.3-13: MCDATA-Info (Table 6.2.5.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	not present			
mcdata-client-id	not present			

Table 6.2.5.3.3-14: FD Signalling Payload (Table 6.2.5.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.13.1-1				
Mandatory download	present	Not present indicates a Non-Mandatory download		

Table 6.2.5.3.3-15: SIP MESSAGE (step 7, Table 6.2.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.5.3.3-16			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.5.3.3-17			

Table 6.2.5.3.3-16: MCDATA-Info (6.2.5.3.3-15)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.5.3.3-17: FD NOTIFICATION (Table 6.2.5.3.3-15)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.5.3.3-18: SIP MESSAGE (step 10, Table 6.2.5.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.5.3.3-16			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.5.3.3-19			

Table 6.2.5.3.3-19: FD NOTIFICATION (Table 6.2.5.3.3-18)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.6 On-network / File Distribution (FD) / FD Using HTTP / One-to-one Standalone FD / Mandatory Download / With Disposition Request / Client Terminated (CT)

6.2.6.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { UE (MCDATA Client) receives a SIP MESSAGE message for a standalone one-to-one FD message
with a mandatory download and with a disposition of "FILE DOWNLOAD COMPLETE UPDATE" }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message **and** notifies the MCDATA User
about the incoming FD request and that the file identified by file URL in the Payload data in the
Payload IE will be downloaded automatically **and** generates an FD NOTIFICATION indicating acceptance
of the FD request **and** attempts to download the file with an HTTP GET message }
        }

(2)

with { UE (MCDATA Client) having started to download the file by sending an HTTP GET message }
ensure that {
  when { UE (MCDATA Client) has successfully downloaded the file }
    then { UE (MCDATA Client) notifies the MCDATA User that the file has successfully downloaded **and**
generates an FD NOTIFICATION indicating the successful download of the file }
        }

6.2.6.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.4.2.2, 10.2.1.2.3, 12.2.1.1, 10.2.3.1. The following represents a copy/paste extraction of the requirements relevant to the test

purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.4.2.2]

Upon receipt of a "SIP MESSAGE request for FD using HTTP for terminating MCData client", the MCData client:

1) may reject the SIP MESSAGE request if there are not enough resources to handle the SIP MESSAGE request;

2) if the SIP MESSAGE request is rejected in step 1), shall respond towards the participating MCData function with a SIP 480 (Temporarily unavailable) response and skip the rest of the steps of this subclause;

3) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

4) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5]; and

5) shall handle the received message as specified in subclause 10.2.1.2.

[TS 24.282, clause 10.2.1.2.3]

The MCData client:

1) if the FD SIGNALLING PAYLOAD message does not contain an 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-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 2: 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 3: 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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) 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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) void;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 10.2.3.1]

The media storage client on the MCData client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE, in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To download a file from the media storage function on the controlling MCData function, the media storage client on the MCData client:

1) shall generate an HTTP GET request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23] with a Request-URI set to an absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function; and

2) shall send the HTTP GET request towards the media storage function on the controlling MCData function.

On receipt of a HTTP 200 OK response containing the requested file, the MCData client shall notify the user or application that the file has been successfully downloaded.

6.2.6.3   Test description

6.2.6.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The <max-data-size-fd-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [14] shall be large enough to allow the sending of the standalone FD message using HTTP.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.6.3.2 Test procedure sequence

Table 6.2.6.3.2-1: Main Behaviour

St	Procedure	U - S	Message	TP	Verdict
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone one-to-one FD message with a disposition of "FILE DOWNLOAD COMPLETED" and a mandatory download.	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
3	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request and that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
4	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating acceptance of the FD request?	-->	SIP MESSAGE	1	P
5	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
6	Check: Does the UE (MCDATA Client) send a HTTP GET message to download the file?	-->	HTTP GET	1	P
7	SS (MCDATA Server) sends a HTTP 200 OK message containing the requested file.	<--	HTTP 200 OK	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
8	Check: Does the UE (MCDATA Client) notify the MCDATA User of the successful download of the file? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
9	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating the file has been successfully downloaded?	-->	SIP MESSAGE	2	P
10	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

6.2.6.3.3   Specific message contents

Table 6.2.6.3.3-1: SIP MESSAGE (step 1, Table 6.2.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.6.3.3-2			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	As described in Table 6.2.6.3.3-3			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.6.3.3-2: MCData-Info (Table 6.2.6.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-user-id	px_MCDATA_ID_User_B			
mcdata-called-party-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.6.3.3-3: FD Signalling Payload (Table 6.2.6.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.13.2-1				
Mandatory download	present	Not present indicates a Non-Mandatory download		

Table 6.2.6.3.3-4: SIP 200 (OK) (step 2, Table 6.2.6.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.6.3.3-5: SIP MESSAGE (steps 4, Table 6.2.6.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Information Element	Value/remark	Comment	Reference	Condition
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.6.3.3-6			

Table 6.2.6.3.3-6: FD NOTIFICATION (Table 6.2.6.3.3-5)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.6.3.3-7: HTTP GET (step 6, Table 6.2.6.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Method	"GET"			
Request-URI				
uri	px_MCDATA_FD_FILE_LOC	The absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function	TS 24.282 [31] clause 10.2.3.1	
HTTP-Version	"HTTP/1.1"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.6.3.3-8: HTTP 200 (OK) (step 7, Table 6.2.6.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.6-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type				
media-type	"application/octet-stream"			
Message-body				
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.3.2	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.6.3.3-9			

Table 6.2.6.3.3-9: DATA PAYLOD (Table 6.2.1.3.3-8)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Security parameters and Payload	As described in Table 6.2.6.3.3-10	MCData Protected Payload Message		

Table 6.2.6.3.3-10: MCData Protected Payload Message (Table 6.2.6.3.3-9)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-2				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.6.3.3-11: SIP MESSAGE (step 9, Table 6.2.6.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.6.3.3-12			

Table 6.2.6.3.3-12: FD NOTIFICATION (Table 6.2.6.3.3-11)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.7 On-network / File Distribution (FD) / FD Using HTTP / Group Standalone FD / Mandatory Download / Without Disposition Request / Client Originated (CO)

6.2.7.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a Group Standalone FD message with a mandatory download and without a disposition request and the UE (MCDATA Client) is unaware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) sends a SIP MESSAGE to find the URL of the Media Storage Function **and** responds to a SIP MESSAGE that contains the URL of the Media Storage Function with a SIP 200 (OK) message }
          }

(2)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a Group Standalone FD message with a mandatory download and without a disposition request and the UE (MCDATA Client) is aware of the URL of the Media Storage Function }
    then { UE (MCDATA Client) uploads the file to the Media Storage Function via an HTTP POST message **and** then sends the URL of the file location to the recipient via a SIP MESSAGE message }
          }

(3)

with { UE (MCDATA Client) having sent the URL of the file location to the recipient }
ensure that {

```
    when { UE (MCDATA Client) receives a FD notification via a SIP MESSAGE message }
      then { UE (MCDATA Client) responds to the SIP MESSAGE message with a SIP 200 (OK) message and
delivers the notification to the MCDATA User }
            }
```

6.2.7.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.1.3.2, 10.2.2.1, 10.2.4.2.1, 12.2.1.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.1.3.2]

To discover the absolute URI of the media storage function, the MCData client shall generate a SIP MESSAGE request towards the participating MCData function, 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) 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/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element containing the value "msf-disc-req";

4) if the upload of a file is for a group standalone FD request, shall include in an application/vnd.3gpp.mcdata-info+xml MIME body, the <mcdata-calling-group-id> element set to the required MCData group identity; and

NOTE 1: The absence of a group identity in the <mcdata-calling-group-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body implies that the MCData client intends to upload a file for a one-to-one FD request. In this case, the participating MCData function identifies the MCData ID of the user from the binding between the public user identity and the MCData ID.

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

On receipt of a "SIP MESSAGE request for absolute URI discovery response", the MCData client:

1) shall store the absolute URI found in the <mcdata-controller-psi> element;

2) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5]; and

3) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

[TS 24.282, clause 10.2.2.1]

If the media storage client is not aware of the absolute URI of the media storage function, the media storage client shall request the MCData client to discover the absolute URI associated with the media storage function by following the procedures in subclause 10.2.1.3.

The media storage client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To upload a file to media storage function, the media storage client:

1) shall generate an HTTP POST request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23];

2) shall set the Request-URI to the absolute URI identifying the resource on a media storage function;

3) shall set the Host header field to a hostname identifying the media storage function;

4) shall set the Content-Type header field to multipart/mixed and with a boundary delimiter parameter set to any chosen value;

5) if the file upload is for one-to-one file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "one-to-one-fd"; and

    b) the <mcdata-calling-user-id> element set to the originating MCData ID;

6) if the file upload is for group file distribution, shall insert an application/vnd.3gpp.mcdata-info+xml MIME body with:

    a) the <request-type> element set to a value of "group-fd";

    b) the <mcdata-request-uri> element set to the MCData group identity; and

    c) the <mcdata-calling-user-id> element set to the originating MCData ID;

7) if end-to-end security is required for a one-to-one communication, the MCData client protects the binary data representing the file and prefixes the protected binary data with security parameters as described in 3GPP TS 33.180 [26];

8) if

    i) end-to-end security is not required for a one-to-one communication, or

    ii) the file upload is for group file distribution;

    shall include the binary data representing the file with Content-Type field set to application/octet-stream and Content-Length field set to the file size; and

9) shall send the HTTP POST request towards the media storage function.

On receipt of a HTTP 201 Created containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function, then the media storage client shall store this information.

[TS 24.282, clause 10.2.4.2.1]

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 FD 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]; and

    b) an application/vnd.3gpp.mcdata-info+xml MIME body with a <request-type> element set to a value of "one-to-one-fd";

…

4) shall generate a standalone FD message as specified in subclause 6.2.2.2; and

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

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

"SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

"SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

6.2.7.3 Test description

6.2.7.3.1 Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- A binary file is available for the UE (MCDATA Client) to upload.

    - The binary file sent shall be smaller than <max-data-size-fd-bytes> element in the MCData service configuration document as specified in TS 24.484 [14].

    - The <mcdata-on-network-max-data-size-for-FD> element in the MCData service configuration document as specified in 3GPP TS 24.481 [11] shall be large enough to allow the sending of the standalone FD message using HTTP.

    - The <max-data-size-auto-recv-bytes> element of the MCData service configuration document as specified in TS 24.484 [14] shall be smaller than any file uploaded.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.7.3.2   Test procedure sequence

Table 6.2.7.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a binary file via a Group Standalone FD message with a mandatory download and without a disposition request. NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
-	EXCEPTION: Steps 2a1 through 2a4 describe behaviour that depends on UE implementation. Steps 2a1 through 2a4 are only valid if the US (MCDATA Client) is not aware of the URI of the media storage function.	-	-	-	-
2a1	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message to discover the absolute URI of the media storage function?	-->	SIP MESSAGE	1	P
2a2	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
2a3	SS (MCDATA Server) responds with a SIP MESSAGE message with the absolute URI found in the <mcdata-controller-psi> element	<--	SIP MESSAGE	-	-
2a4	Check: Does the UE (MCDATA Client) responds with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	Check: Does the UE (MCDATA Client) send a HTTP POST message over a TLS connection to upload the binary file to the media storage function?	-->	HTTP POST	2	P
4	SS (MCDATA Server) responds with a HTPP 201 Created message containing a Location header field with a URL identifying the location of the resource where the file has been stored on the media storage function.	<--	HTTP 201 Created	-	-
5	Check: Does the UE (MCDATA Client) send a SIP MESSAGE message with a FD SIGNALLING PAYLOAD which contains the Payload content type of "FILEURL" and the URL of the file in the Payload data?	-->	SIP MESSAGE	2	P
6	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
7	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD REQUEST ACCEPTED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
8	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
9	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	3	P

6.2.7.3.3 Specific message contents

Table 6.2.7.3.3-1: SIP MESSAGE (step 2a1, Table 6.2.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.7.3.3-2			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.7.3.3-2: MCDATA-Info (Table 6.2.7.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	px_MCDATA_ID_Client_A			

Table 6.2.7.3.3-3: SIP 200 (OK) (step 2a2, Table 6.2.7.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.7.3.3-4: SIP MESSAGE (step 2a3, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Accept-Contact				
ac-value	"g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
Accept-Contact				
ac-value	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 clause 6.2.4.1 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Identity				
name-addr	px_MCDATA_ID_User_A	The public user identity of the MCData User		
Content-Type				
media-type	"application/vnd.3gpp.mcdata-info+xml"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.7.3.3-5			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.7.3.3-5: MCDATA-Info (Table 6.2.7.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"msf-disc-req"			
mcdata-request-uri	not present			
mcdata-calling-user-id	not present			
mcdata-called-party-id	not present			
mcdata-client-id	not present			
mcdata-controller-psi	px_MCDATA_MSF	element set to the absolute URI of the media storage function		

Table 6.2.7.3.3-6: SIP 200 (OK) (steps 2a4, 8, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.7.3.3-7: HTTP POST (step 3, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: RFC 2616 [26]				
Status-Line				
Request-URI				
uri	px_MCDATA_MSF	The absolute URI identifying the resource on a media storage function	TS 24.282 [31], clause 10.2.2.1	
Authorization		The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in TS 24.482 [12].	TS 24.482 [12], clause A.2.3	
authentication-scheme	"Bearer"			
b64token	Access token as assigned to the UE by Token Response			
P-Asserted-Identity			TS 24.482 [12], clause A.2.3 RFC 3325 [32]	
addr-spec				
user-info and host	px_MCDATA_ID_User_A	The URI of the UE		
Host				
	px_MCDATA_MSF_Hostname	hostname identifying the media storage function	TS 24.282 [31], clause 10.2.2.1	
Content-Length	length of message body			
value	length of message-body			
Content-Type				
media-type	"multipart/mixed"		TS 24.282 [31], clause 10.2.2.1	
Message-body				
Authentication Request	not present			
Message-body				
Token request	not present			
Message-body				
KMS Initialize	not present			
Message-body				
KMS KeyProvision	not present			
Message-body				
MIME body part		MCDATA-Info		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-info+xml"			
MIME-part-body	As described in Table 6.2.7.3.3-8			
MIME body part		DATA PAYLOAD	TS 24.282 [87] clause 10.2.2.1	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.7.3.3-9			

Table 6.2.7.3.3-8: MCDATA-Info (Table 6.2.7.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_Group_A			
mcdata-calling-user-id	px_MCDATA_ID_User_A			
mcdata-client-id	not present			

Table 6.2.7.3.3-9: DATA PAYLOD (Table 6.2.7.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp				
Payload				
Payload content type	"00000010"	BINARY		
Payload data	the file to be uploaded			

Table 6.2.7.3.3-10: HTTP 201 Created (step 4, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: RFC 2616 [26]				
Location				
absoluteURI	px_MCDATA_FD_FILE_LOC	The location of the uploaded file		
Content-Length	not present			
Content-Type	not present			
Message-body	not present			

Table 6.2.7.3.3-11: SIP MESSAGE (step 5, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.7.3.3-12			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	As described in Table 6.2.7.3.3-13			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.7.3.3-12: MCDATA-Info (Table 6.2.7.3.3-11)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_Group_A			
mcdata-calling-user-id	not present			
mcdata-client-id	px_MCDATA_ID_User_A			

Table 6.2.7.3.3-13: FD Signalling Payload (Table 6.2.5.3.3-12)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.13.1-1				
FD disposition request type	Not present	no disposition request		
Mandatory download	Present	Not present indicates a Non-Mandatory download		

Table 6.2.7.3.3-14: SIP MESSAGE (step 7, Table 6.2.7.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.7.3.3-16			

Table 6.2.7.3.3-15: MCDATA-Info (Table 6.2.7.3.3-14)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.7.3.3-16: FD NOTIFICATION (Table 6.2.7.3.3-14)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.8 On-network / File Distribution (FD) / FD Using HTTP / Group Standalone FD / Mandatory Download / Without Disposition Request / Client Terminated (CT)

6.2.8.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { UE (MCDATA Client) receives a SIP MESSAGE message for a group standalone FD message with a mandatory download and without a disposition request }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message **and** notifies the MCDATA User about the incoming FD request and that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically **and** generates an FD NOTIFICATION indicating acceptance of the FD request **and** attempts to download the file with an HTTP GET message }
          }

(2)

with { UE (MCDATA Client) having started to download the file by sending an HTTP GET message }
ensure that {
  when { UE (MCDATA Client) has successfully downloaded the file }
    then { UE (MCDATA Client) notifies the MCDATA User that the file has successfully downloaded }
          }

6.2.8.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.4.2.2, 10.2.1.2.3, 12.2.1.1, 10.2.3.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.4.2.2]

Upon receipt of a "SIP MESSAGE request for FD using HTTP for terminating MCData client", the MCData client:

1) may reject the SIP MESSAGE request if there are not enough resources to handle the SIP MESSAGE request;

2) if the SIP MESSAGE request is rejected in step 1), shall respond towards the participating MCData function with a SIP 480 (Temporarily unavailable) response and skip the rest of the steps of this subclause;

3) shall generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

4) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5]; and

5) shall handle the received message as specified in subclause 10.2.1.2.

[TS 24.282, clause 10.2.1.2.3]

The MCData client:

1) if the FD SIGNALLING PAYLOAD message does not contain an 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-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 2: 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 3: 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.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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 6.2.8.1;

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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4) void;

5) if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 10.2.3.1]

The media storage client on the MCData client shall send HTTP requests over a TLS connection as specified for the HTTP client in the UE, in annex A of 3GPP TS 24.482 [24].

NOTE 1: The HTTP client encodes the MCData ID in the bearer access token of the Authorization header field of an HTTP request as specified in 3GPP TS 24.482 [24].

NOTE 2: The HTTP client always sends the HTTP requests to an HTTP proxy. Annex A of 3GPP TS 24.482 [24] indicates how the HTTP proxy forwards the HTTP request to the HTTP server.

To download a file from the media storage function on the controlling MCData function, the media storage client on the MCData client:

1) shall generate an HTTP GET request as specified in IETF RFC 7230 [22] and IETF RFC 7231 [23] with a Request-URI set to an absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function; and

2) shall send the HTTP GET request towards the media storage function on the controlling MCData function.

On receipt of a HTTP 200 OK response containing the requested file, the MCData client shall notify the user or application that the file has been successfully downloaded.

6.2.8.3 Test description

6.2.8.3.1 Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- The < mcdata-on-network-max-data-size-for-FD > element in the MCData service configuration document as specified in 3GPP TS 24.481 [11] shall be large enough to allow the sending of the standalone FD message using HTTP.

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

    - The UE is in E-UTRA Registered, Idle Mode state.

    - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.8.3.2 Test procedure sequence

Table 6.2.8.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a group standalone FD message with a disposition of "FILE DOWNLOAD COMPLETED".	<--	SIP MESSAGE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
3	Check: Does the UE (MCDATA Client) notify the MCDATA User of the incoming FD request and that the file identified by file URL in the Payload data in the Payload IE will be downloaded automatically? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	1	P
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
4	Check: Does the UE (MCDATA Client) send a FD NOTIFICATION via a SIP MESSAGE message indicating acceptance of the FD request?	-->	SIP MESSAGE	1	P
5	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
6	Check: Does the UE (MCDATA Client) send a HTTP GET message to download the file?	-->	HTTP GET	1	P
7	SS (MCDATA Server) sends a HTTP 200 OK message containing the requested file.	<--	HTTP 200 OK	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
8	Check: Does the UE (MCDATA Client) notify the MCDATA User of the successful download of the file? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	2	P

6.2.8.3.3 Specific message contents

Table 6.2.8.3.3-1: SIP MESSAGE (step 1, Table 6.2.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA				
Information Element	Value/remark	Comment	Reference	Condition
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Asserted-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.8.3.3-2			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	As described in Table 6.2.8.3.3-3			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.8.3.3-2: MCData-Info (Table 6.2.8.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
Information Element	Value/remark	Comment	Reference	Condition
mcdata-info				
mcdata-Params				
request-type	"group-fd"			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-called-party-id	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.8.3.3-3: FD Signalling Payload (Table 6.2.6.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.13.2-1				
Information Element	Value/remark	Comment	Reference	Condition
FD disposition request type	Not present	no disposition request		
Mandatory download	Present	Not present indicates a Non-Mandatory download		

Table 6.2.8.3.3-4: SIP 200 (OK) (step 2, Table 6.2.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact				
feature-param	"+g.3gpp.mcdata.fd"	The default value is "+g.3gpp.mcdata.sds"		
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"	The default value is "+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"		
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.8.3.3-5: SIP MESSAGE (step 4, Table 6.2.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Accept-Contact			TS 24.282 [31] clause 6.2.8.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.8.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part		MCData Info		
MIME-part-headers	As described in Table 6.2.8.3.3-6			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE as described in Table 6.2.8.3.3-7			

Table 6.2.8.3.3-6: MCDATA-Info (Table 6.2.8.3.3-5)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	not present			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.8.3.3-7: FD NOTIFICATION (Table 6.2.8.3.3-5)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000001"	FILE DOWNLOAD REQUEST ACCEPTED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.8.3.3-8: HTTP GET (step 6, Table 6.2.8.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.4.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Method	"GET"			
Request-URI				
uri	px_MCDATA_FD_FILE_LOC	The absolute URI identifying the URL of the file being requested from the media storage function on the controlling MCData function	TS 24.282 [31] clause 10.2.3.1	
HTTP-Version	"HTTP/1.1"			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.8.3.3-9: HTTP 200 (OK) (step 7, Table 6.2.8.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.4.6-1				
Content-Type				
media-type	"application/octet-stream"			
Message-body				
MIME body part		DATA PAYLOAD	TS 24.282 [31] clause 10.2.3.2	
MIME-part-headers				
MIME-Content-Type	"application/octet-stream"			
Content-Length	set to the file size of the uploaded file			
MIME-part-body	As described in Table 6.2.8.3.3-11			

Table 6.2.8.3.3-10: DATA PAYLOD (Table 6.2.1.3.3-9)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp				
Payload				
Payload content type	"00000010"	BINARY		
Payload data	the file to be downloaded			

6.2.9 On-network / File Distribution (FD) / FD Using Media Plane / One-to-one Standalone FD / Client Originated (CO)

6.2.9.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a one-to-one standalone FD message using the media plane}
    then { UE (MCDATA Client) sends a request to establish an MSRP connection via a SIP INVITE
message and then responds to the SIP 200 (OK) message with a SIP ACK message }
        }
```

(2)

```
with { UE (MCDATA Client) having requested the establishment of a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives a SIP 200 (OK) message with the a=setup attribute set to
"passive"  from the SS (MCDATA server) }
    then { UE (MCDATA Client) sends a blank MSRP SEND message to bind the MSRP connection and then
sends the one-to-one standalone FD message via a MSRP SEND message }
        }
```

(3)

```
with { UE (MCDATA Client) having sent a one-to-one standalone FD message using the media plane }
ensure that {
  when { UE (MCDATA Client receives a MSRP 200 (OK) message in response to the last MSRP SEND
message indicating that the standalone FD message has been successfully transferred }
    then { UE (MCDATA Client) sends a SIP BYE message }
        }
```

(4)

```
with { UE (MCDATA Client) having sent a one-to-one standalone FD message using the media plane with
a disposition of "FILE DOWNLOAD COMPLETED UPDATE" }
ensure that {
  when { UE (MCDATA Client receives a disposition response via a SIP MESSAGE message from the SS
(MCDATA Server }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
              }
```

6.2.9.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.5.2.3, 6.2.2.3, 12.2.1.2, TS 24.582 clause 7.1.2.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.5.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.fd media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" (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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) shall generate and contain an application/vnd.3gpp.mcdata-signalling MIME body with the FD SIGNALLING PAYLOAD as described in subclause 6.2.2.3;

8) if a one-to-one file distribution is requested:

   a) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18]; and

   b) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "one-to-one-fd";

   c) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

      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 MCData client using the MCData 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 MCData ID of the originating MCData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26]; and

vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

9) if a group file distribution is requested:

a) if the "/<x>/<x>/Common/MCData/AllowedFD" leaf node present in the group document of the requested MCData group, configured on the group management client as specified in 3GPP TS 24.483 [42] is set to "false", shall reject the request for FD and not continue with the rest of the steps in this subclause; and

b) shall contain in an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

i) the <request-type> element set to a value of "group-fd";

ii) the <mcdata-request-uri> element set to the MCData group identity; and

iii) the <mcdata-client-id> element set to the MCData client ID of the originating MCData client;

NOTE 1: The MCData client does not include the MCData ID of the originating MCData user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCData function.

10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

12) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 10.2.5.2.1; and

13) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 10.2.5.1.1..

[TS 24.282, clause 6.2.2.3]

In order to generate an FD message, the MCData 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 MCData client:

1) shall set the Date and time IE to the current time as specified in subclause 15.2.8;

2) if the filestarts 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 file continues an existing 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 files in reply to a previously received SDS message or file, shall include the InReplyTo message ID IE with the Message ID value in the previously received SDS message or file;

6) if the file is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7;

7) if the file is intended for an application on the terminating MCData client, shall include an Application ID IE with an Application ID value representing the intended application as specified in subclause 15.2.7;

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

8) if a file download complete notification is required shall include a FD disposition request type IE set to "FILE DOWNLOAD COMPLETED UPDATE" as specified in subclause 15.2.4; and

9) shall include and set the Mandatory download IE to "MANDATORY DOWNLOAD" as described in subclause 15.2.16.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

"SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

"SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

1) shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

2) shall deliver the notification to the user or application.

[TS 24.582, clause 6.1.1.2.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the originating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client:

1. shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

2. shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

If MSRP chunking is not used then on receipt of a 200 (OK) response, the MCData client shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary;

2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

2. shall indicate to MCData user that the SDS message could not be sent; and

3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving an indication to terminate the session from the signalling plane, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks and may indicate to MCData user that the SDS message could not be sent.

[TS 24.582, clause 7.1.2.1]

Upon receiving an indication to establish MSRP connection for file distribution as the originating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client can send the file. To send the file, the MCData client:

1. shall generate MSRP SEND for file distribution request according to IETF RFC 4975 [11]. When generating an MSRP SEND, the MCData client:

   a. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

   b. shall set the first content type as Content-Type = "application/vnd.3gpp.mcdata-file"; and

   c. shall set the body of the MSRP SEND request with MSRP payload. MSRP payload is set to the file or part of the file.

2. shall send the MSRP SEND request(s) on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests containing the file as necessary;

2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

2. shall indicate to MCData user that the file could not be distributed; and

3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

6.2.9.3   Test description

6.2.9.3.1   Pre-test conditions

System Simulator:

-   SS (MCDATA Server)

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

IUT:

-   UE (MCDATA Client)

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

-   A binary file is available for the UE (MCDATA Client) to upload.

    -   The binary file sent shall be smaller than the <max-data-size-fd-bytes> element in the MCData service configuration document as specified in TS 24.484 [14].

    -   The binary file sent shall be smaller than the <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in TS 24.484 [14])

Preamble:

-   The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

-   The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

-   UE States at the end of the preamble

    -   The UE is in E-UTRA Registered, Idle Mode state.

    -   The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.9.3.2   Test procedure sequence

Table 6.2.9.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	**Message**		
1	Make the MCDATA User request to send a one-to-one standalone FD message over the media plane with a disposition notification type of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCData Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCDATA Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not.	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted.	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	Check: Does the (MCDATA Client) send a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message?	-->	SIP BYE	3	P
9	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P

6.2.9.3.3 Specific message contents

Table 6.2.9.3.3-1: SIP INVITE (step 2, Table 6.2.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition MCDATA, MCD_1to1				
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		SDP		
MIME-part-body	As described in Table 6.2.9.3.3-2			
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.9.3.3-3			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.3-1			
MIME body part	Not present	MIKEY message		

Table 6.2.9.3.3-2: SDP for SIP INVITE (Table 6.2.9.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3, condition MCD_1to1				
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string		RFC 5547 [X]	
type	"type:" type "/" subtype	a binary file	RFC 5547 [X]	
size	"size:" filesize-value	filesize-value is an integer	RFC 5547 [X]	
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)	RFC 5547 [X]	
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created		RFC 5547 [X]	

Table 6.2.9.3.3-3: MCDATA-Info (Table 6.2.9.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3				
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	not present			
mcdata-controller-psi	not present			

Table 6.2.9.3.3-4: SIP 200 (OK) (step 3, Table 6.2.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Contact			TS 24.282 [31] clause 10.2.3.3.3	
feature-param	"g.3gpp.mcdata.fd"			
feature-param	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 10.2.3.3.3	
P-Asserted-Identity				
name-addr	px_MCDATA_Server_A_URI			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.9.3.3-5			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.9.3.3-3			

Table 6.2.9.3.3-5: SDP for SIP 200 (OK) (Table 6.2.9.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3					
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string		RFC 5547 [X]	
type	"type:" type "/" subtype	a binary file	RFC 5547 [X]	
size	"size:" filesize-value	filesize-value is an integer	RFC 5547 [X]	
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)	RFC 5547 [X]	
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created		RFC 5547 [X]	
media attribute		a= line attribute = setup	RFC 6135 [x] RFC 4145 [x]	
role	"passive"			

Table 6.2.9.3.3-6: MSRP SEND (step 7a1, Table 6.2.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1					
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-file"			
MIME-part-body	As described in Table 6.2.9.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.9.3.3-7: FD Data Payload (Table 6.2.9.3.3-6)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_1to1					
Security parameters and Payload	As described in Table 6.2.9.3.3-8	MCData Protected Payload Message		

Table 6.2.9.3.3-8: MCData Protected Payload Message (Table 6.2.9.3.3-7)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-1					
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.9.3.3-9: MSRP SEND (step 7b1, Table 6.2.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-file"			
MIME-part-body	As described in Table 6.2.9.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.9.3.3-10: MSRP SEND (step 7b3, Table 6.2.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-file"			
MIME-part-body	As described in Table 6.2.9.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.9.3.3-11: SIP BYE (step 8, Table 6.2.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			
Reason			RFC 3326 [X]	
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.2.9.3.3-12: SIP 200 (OK) (step 9, Table 6.2.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.9.3.3-13: SIP MESSAGE (step 10, Table 6.2.9.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Message-body			RFC 3261 [22]	
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.9.3.3-14			
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling "			
MIME-part-body	As described in Table 6.2.9.3.3-15			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		

Table 6.2.9.3.3-14: MCDATA-Info (Table 6.2.9.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User _A			
mcdata-client-id	not present			

Table 6.2.9.3.3-15: FD NOTIFICATION (Table 6.2.9.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.5.1-1				
SDS notification message identity	"00000101"	SDS Notification	TS 24.282 [31] clause 15.2.2	
SDS disposition notification type	"00000010"	DELIVERED	TS 24.282 [31] clause 15.2.5	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MRSP SEND	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MRSP SEND	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	Not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.9.3.3-16: SIP 200 (OK) (step 11, Table 6.2.9.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.2.10 On-network / File Distribution (FD) / FD Using Media Plane / One-to-one Standalone FD / Client Terminated (CT)

6.2.10.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a standalone one-to-one FD message using
the media plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
          }
```

(2)

```
with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a standalone
one-to-one FD message using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message from the SS (MCDATA Server) }
    then { UE (MCDATA Client) responds with an MSRP 200 (OK) message }
          }
```

(3)

```
with { UE (MCDATA Client) having finished receiving the file from the SS (MCDATA server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message to release communications }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message and then sends a "FILE DOWNLOAD
COMPLETED" disposition via a SIP MESSAGE message }
          }
```

6.2.10.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.5.2.4, 12.2.1.1, 6.2.3.2, TS 24.582 clauses 7.1.3.1, 7.1.3.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.5.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

   a) MCData client does not have enough resources to handle the call; or

   b) any other reason outside the scope of this specification;

   and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

   a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

   b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

   c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

   d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

      ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

4) may display to the MCData user the MCData ID of the inviting MCData user;

5) may display to the MCData user the file meta-data of the incoming file as described by the SDP included in the received SIP INVITE request;

6) if the Mandatory indication IE of the FD SIGNALLING PAYLOAD contained in the application/vnd.3gpp.mcdata-signalling MIME body received in the SIP INVITE request is set to "MANDATORY", then:

   i) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

   ii) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

   iii) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

   iv) shall include the g.3gpp.mcdata.fd media feature tag in the Contact header field of the SIP 200 (OK) response;

   v) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in the Contact header field of the SIP 200 (OK) response;

   vi) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 10.2.5.2.2; and

   vii) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 10.2.5.1.2.

On receipt of an indication from the media plane of the successful download of the file and if the received FD SIGNALLING PAYLOAD message contained an FD disposition request type IE requesting a file download completed update indication, then, the MCData client:

    1)   shall follow the procedures described in subclause 12.2.1.1.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

-   indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

-   indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

-   indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

-   the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

-   the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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)   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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

    4)   shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

    5)   if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 6.2.3.2]

In order to generate an FD notification, the MCData client:

1) shall generate an FD NOTIFICATION message as specified in subclause 15.1.6; and

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

When generating an FD NOTIFICATION message as specified in subclause 15.1.6, the MCData client:

1) if sending a file download accept notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST ACCEPTED" as specified in subclause 15.2.6;

2) if sending a file download reject notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST REJECTED" as specified in subclause 15.2.6;

3) if sending a file download deferred notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST DEFERRED" as specified in subclause 15.2.6;

4) shall set the Conversation ID to the value of the Conversation ID that was received in the FD message as specified in subclause 15.2.9;

5) shall set the Date and time IE to the current time as specified in subclause 15.2.8; and

6) if sending a file download completed notification:

   a) shall set the FD disposition notification type IE as "FILE DOWNLOAD COMPLETED" as specified in subclause 15.2.6;

   b) shall set the Message ID to the value of the Message ID that was received in the FD message as specified in subclause 15.2.10;

   c) if the FD message was destined for the user, shall not include an Application ID IE as specified in subclause 15.2.7; and

   d) if the FD message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the FD message as specified in subclause 15.2.3.

[TS 24.582, clause 7.1.3.1]

Upon receiving an indication to establish MSRP connection for file distribution as the terminating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the file before delivering the content to the application; and

3. shall handle the received content as described in subclause 7.1.3.2.

[TS 24.582, clause 7.1.3.2]

Upon receiving a file, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-file MIME body; and

2. once all the chunks of the file are successfully received, shall indicate to the signalling plane that the file download is completed.

6.2.10.3   Test description

6.2.10.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.10.3.2 Test procedure sequence

Table 6.2.10.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone one-to-one FD message using the media plane with a disposition notification type of "FILE DOWNLOAD COMPLETED UPDATE".	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message.	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	The SS (MCDATA Server) sends a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message.	<--	SIP BYE	-	-
9	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
11	Check: Does the UE (MCDATA Client) respond with a disposition notification of "FILE DOWNLOAD COMPLETED"?	-->	SIP MESSAGE	3	P
12	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-

6.2.10.3.3 Specific message contents

Table 6.2.10.3.3-1: SIP INVITE (step 1, Table 6.2.10.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA, MCD_1to1, PRIVATE CALL				
Contact				
feature-param	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
feature-param	"+g.3gpp.mcdata.fd"			
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.sds"			
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.10.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.10.3.3-3			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.4-1.			
MIME body part	Not present	MIKEY message		
MIME-part-body	Not present			

Table 6.2.10.3.3-2: SDP for SIP INVITE (Table 6.2.10.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string			
type	"type:" type "/" subtype	a binary file		
size	"size:" filesize-value	filesize-value is an integer		
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)		
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created			

Table 6.2.10.3.3-3: MCDATA-Info (Table 6.2.10.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"one-to-one-fd"			
mcdata-request-uri	px_MCDATA_ID_User _A			
mcdata-calling-user-id	px_MCDATA_ID_User _B			
mcdata-called-party-id	not present			
mcdata-client-id	not present			

Table 6.2.10.3.3-4: SIP 200 (OK) (step 2, Table 6.2.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session		
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.10.3.3-5			
MIME body part	not present	MCData Info		

Table 6.2.10.3.3-5: SDP for SIP 200 (OK) (Table 6.2.10.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string			
type	"type:" type "/" subtype	a binary file		
size	"size:" filesize-value	filesize-value is an integer		
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)		
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created			
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.2.10.3.3-6: MSRP SEND (step 6, Table 6.2.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.2.10.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.10.3.3-7: FD Data Payload (Table 6.2.10.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Security parameters and Payload	As described in Table 6.2.9.3.3-8	MCData Protected Payload Message		

Table 6.2.10.3.3-8: MCData Protected Payload Message (Table 6.2.9.3.3-7)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.10-2				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload		Protected Payload (Ciphertext)		
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.10.3.3-9: SIP BYE (step 8, Table 6.2.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Reason				
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.2.10.3.3-10: SIP 200 (OK) (step 9, Table 6.2.10.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.10.3.3-11: SIP MESSAGE (step 11, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-12			

Table 6.2.10.3.3-12: FD NOTIFICATION (Table 6.2.2.3.3-11)

Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

6.2.11 On-network / File Distribution (FD) / FD Using Media Plane / Group Standalone FD / Client Originated (CO)

6.2.11.1 Test Purpose (TP)

(1)

with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User requests to send a group standalone FD message using the media plane}
    then { UE (MCDATA Client) sends a request to establish an MSRP connection via a SIP INVITE message **and** then responds to the SIP 200 (OK) message with a SIP ACK message }
        }

(2)

with { UE (MCDATA Client) having requested the establishment of a MSRP connection }
ensure that {
  when { UE (MCDATA Client) receives a SIP 200 (OK) message with the a=setup attribute set to "passive" from the SS (MCDATA server) }
    then { UE (MCDATA Client) sends a blank MSRP SEND message to bind the MSRP connection **and** then sends the group standalone FD message via a MSRP SEND message }
        }

(3)

with { UE (MCDATA Client) having sent a group standalone FD message using the media plane }
ensure that {
  when { UE (MCDATA Client receives a MSRP 200 (OK) message in response to the last MSRP SEND message indicating that the standalone FD message has been successfully transferred }
    then { UE (MCDATA Client) sends a SIP BYE message }
        }

(4)

```
with { UE (MCDATA Client) having sent a group standalone FD message using the media plane with a
disposition of "FILE DOWNLOAD COMPLETED UPDATE" }
ensure that {
  when { UE (MCDATA Client receives a disposition response via a SIP MESSAGE message from the SS
(MCDATA Server }
    then { UE (MCDATA Client) responds to the SIP MESSAGE message by sending a SIP 200 (OK) message
and delivers the notification to the MCDATA User }
          }
```

6.2.11.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.5.2.3, 6.2.2.3, 12.2.1.2, TS 24.582 clause 7.1.2.1. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.5.2.3]

The MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.fd media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

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];

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

4) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" (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 INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) shall generate and contain an application/vnd.3gpp.mcdata-signalling MIME body with the FD SIGNALLING PAYLOAD as described in subclause 6.2.2.3;

8) if a one-to-one file distribution is requested:

   a) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18]; and

   b) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "one-to-one-fd";

   c) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

      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 MCData client using the MCData 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 MCData ID of the originating MCData to the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26]; and

    vii) shall sign the MIKEY-SAKKE I_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

9) if a group file distribution is requested:

    a) if the "/<x>/<x>/Common/MCData/AllowedFD" leaf node present in the group document of the requested MCData group, configured on the group management client as specified in 3GPP TS 24.483 [42] is set to "false", shall reject the request for FD and not continue with the rest of the steps in this subclause; and

    b) shall contain in an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

      i) the <request-type> element set to a value of "group-fd";

      ii) the <mcdata-request-uri> element set to the MCData group identity; and

      iii) the <mcdata-client-id> element set to the MCData client ID of the originating MCData client;

NOTE 1: The MCData client does not include the MCData ID of the originating MCData user in the body, as this will be inserted into the body of the SIP INVITE request that is sent from the originating participating MCData function.

10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 2: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

12) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 10.2.5.2.1; and

13) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 10.2.5.1.1..

[TS 24.282, clause 6.2.2.3]

In order to generate an FD message, the MCData 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 MCData client:

    1)   shall set the Date and time IE to the current time as specified in subclause 15.2.8;

    2)   if the filestarts 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 file continues an existing 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 files in reply to a previously received SDS message or file, shall include the InReplyTo message ID IE with the Message ID value in the previously received SDS message or file;

    6)   if the file is for user consumption, shall not include an Application ID IE as specified in subclause 15.2.7;

    7)   if the file is intended for an application on the terminating MCData client, shall include an Application ID IE with an Application ID value representing the intended application as specified in subclause 15.2.7;

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

    8)   if a file download complete notification is required shall include a FD disposition request type IE set to "FILE DOWNLOAD COMPLETED UPDATE" as specified in subclause 15.2.4; and

    9)   shall include and set the Mandatory download IE to "MANDATORY DOWNLOAD" as described in subclause 15.2.16.

[TS 24.282, clause 12.2.1.2]

Upon receipt of a:

    "SIP MESSAGE request for SDS disposition notification for terminating MCData client"; or

    "SIP MESSAGE request for FD disposition notification for terminating MCData client";

the MCData client:

    1)   shall decode the contents of the application/vnd.3gpp.mcdata-signalling MIME body; and

    2)   shall deliver the notification to the user or application.

[TS 24.582, clause 6.1.1.2.1]

Upon receiving an indication to establish MSRP connection for standalone SDS using media plane as the originating client, the MCData client:

    1.   shall act as an MSRP client according to IETF RFC 6135 [12];

    2.   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";

    3.   shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

    4.   if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client:

    1.   shall generate a SDS SIGNALLING PAYLOAD as specified in subclause 6.1.1.2.2;

    2.   shall generate a SDS DATA PAYLOAD as specified in subclause 6.1.1.2.3;

3. shall include the SDS SIGNALLING PAYLOAD and SDS DATA PAYLOAD in an MSRP SEND request as specified in subclause 6.1.1.2.4; and

4. shall send the MSRP SEND request on the established MSRP connection.

NOTE: MSRP chunking, if needed, may affect the number of "Content Type" lines in each MSRP SEND message conveying a chunk, as also specified in subclause 6.1.1.2.4.

If MSRP chunking is not used then on receipt of a 200 (OK) response, the MCData client shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests as necessary;

2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

2. shall indicate to MCData user that the SDS message could not be sent; and

3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving an indication to terminate the session from the signalling plane, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks and may indicate to MCData user that the SDS message could not be sent.

[TS 24.582, clause 7.1.2.1]

Upon receiving an indication to establish MSRP connection for file distribution as the originating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. 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";

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP answer received in the SIP 200 (OK) response according to IETF RFC 4975 [11]; and

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12].

On receiving MSRP 200 (OK) response to the first MSRP SEND request, the MCData client can send the file. To send the file, the MCData client:

1. shall generate MSRP SEND for file distribution request according to IETF RFC 4975 [11]. When generating an MSRP SEND, the MCData client:

    a. shall set To-Path header according to the MSRP URI(s) received in the answer SDP;

    b. shall set the first content type as Content-Type = "application/vnd.3gpp.mcdata-file"; and

    c. shall set the body of the MSRP SEND request with MSRP payload. MSRP payload is set to the file or part of the file.

2. shall send the MSRP SEND request(s) on the established MSRP connection.

If MSRP chunking is used, the MCData client:

1. shall send further MSRP SEND requests containing the file as necessary;

2. shall wait for a 200 (OK) response to each MSRP SEND request sent; and

3. on receipt of the last 200 (OK) response shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

On receiving a non-200 MSRP response to the MSRP SEND request the MCData client shall handle the error as specified in IETF RFC 4975 [11]. To terminate the MSRP session, the MCData client:

1. if there are further MSRP chunks to send, shall abort transmission of these further MSRP chunks;

2. shall indicate to MCData user that the file could not be distributed; and

3. shall terminate the SIP session as specified in 3GPP TS 24.282 [8].

6.2.11.3   Test description

6.2.11.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

- A binary file is available for the UE (MCDATA Client) to upload.

  - The binary file sent shall be smaller than the <max-data-size-fd-bytes> element in the MCData service configuration document as specified in TS 24.484 [14].

  - The binary file sent shall be smaller than the <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in TS 24.484 [14])

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

  - The UE is in E-UTRA Registered, Idle Mode state.

  - The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.11.3.2 Test procedure sequence

Table 6.2.11.3.2-1: Main Behaviour

St	Procedure	Message Sequence		TP	Verdict
		U - S	Message		
1	Make the MCDATA User request to send a group standalone FD message over the media plane with a disposition notification type of "FILE DOWNLOAD COMPLETED UPDATE". NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
2	Check: Does the UE (MCDATA Client) send a SIP INVITE message to initiate the establishment of the media plane?	-->	SIP INVITE	1	P
3	SS (MCDATA Server) responds with a SIP 200 (OK) message with the a=setup attribute set to "passive".	<--	SIP 200 (OK)	-	-
4	Check: Does the UE (MCData Client) respond to the SIP 200 (OK) message with a SIP ACK message?	-->	SIP ACK	1	P
5	Check: Does the UE (MCDATA Client) send an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint?	-->	MSRP SEND	2	P
6	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7a1 - 7b4 describe behaviour that depends on the size of data being transmitted and the UE implementation; the "lower case letter" identifies a step sequence that takes place if MSRP chunking is used or not.	-	-	-	-
7a1	Check: Does the (MCDATA Client) send a MSRP SEND message? NOTE: UE is sending all of the data intended for transmission in a single message.	-->	MSRP SEND	2	P
7a2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
-	EXCEPTION: Steps 7b1-7b2 may be repeated multiple times depending on the size of the data being transmitted.	-	-	-	-
7b1	Check: Does the (MCDATA Client) send a MSRP SEND message with the flag at the end of the End-line equal to "+"? NOTE: UE is sending one chunk of the data intended for transmission.	-->	MSRP SEND	2	P
7b2	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
7b3	Check: Does the (MCDATA Client) send a MSRP SEND message with the flag at the end of the End-line equal to "$"? NOTE: UE is sending the last chunk of data intended for transmission.	-->	MSRP SEND	2	P
7b4	SS (MCDATA Server) responds with a MSRP 200 (OK) message.	<--	MSRP 200 (OK)	-	-
8	Check: Does the (MCDATA Client) send a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message?	-->	SIP BYE	3	P
9	SS (MCDATA Server) responds with a SIP 200 (OK) message.	<--	SIP 200 (OK)	-	-
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-

-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
10	SS (MCDATA Server) sends a disposition notification type of "FILE DOWNLOAD COMPLETED" via a SIP MESSAGE message.	<--	SIP MESSAGE	-	-
11	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	4	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
12	Check: Does the UE (MCDATA Client) deliver the notification the MCDATA User? NOTE: This is expected to be done via a suitable implementation dependent MMI.	-	-	4	P

6.2.11.3.3   Specific message contents

Table 6.2.11.3.3-1: SIP INVITE (step 2, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.1-1, condition MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Contact				
feature-param	"+g.3gpp.mcdata.fd"			
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
P-Preferred-Service				
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		SDP		
MIME-part-body	As described in Table 6.2.11.3.3-2			
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.11.3.3-3			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.3-1			

Table 6.2.11.3.3-2: SDP for SIP INVITE (Table 6.2.11.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3, condition MCD_1to1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string		RFC 5547 [X]	
type	"type:" type "/" subtype	a binary file	RFC 5547 [X]	
size	"size:" filesize-value	filesize-value is an integer	RFC 5547 [X]	
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)	RFC 5547 [X]	
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created		RFC 5547 [X]	

Table 6.2.11.3.3-3: MCDATA-Info (Table 6.2.11.3.3-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.1-3, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
mcdata-info				
mcdata-Params				
request-type	"group-fd"			

Table 6.2.11.3.3-4: SIP 200 (OK) (step 3, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Record-Route	not present			
Contact			TS 24.282 [31] clause 10.2.3.3.3	
feature-param	"g.3gpp.mcdata.fd"			
feature-param	"urn:urn-7:3gpp- service.ims.icsi.mcdata. fd"			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 10.2.3.3.3	
P-Asserted-Identity				
name-addr	px_MCDATA_Server_A _URI			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.11.3.3-5			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.11.3.3-3			

Table 6.2.11.3.3-5: SDP for SIP 200 (OK) (Table 6.2.11.3.3-4)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp.mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string		RFC 5547 [X]	
type	"type:" type "/" subtype	a binary file	RFC 5547 [X]	
size	"size:" filesize-value	filesize-value is an integer	RFC 5547 [X]	
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)	RFC 5547 [X]	
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created		RFC 5547 [X]	
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.2.11.3.3-6: MSRP SEND (step 7a1, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-1				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp.mcdata-file"			
MIME-part-body	As described in Table 6.2.11.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.11.3.3-7: FD Data Payload (Table 6.2.11.3.3-6)

Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-1, condition MCD_grp				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Payload				
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.11.3.3-8: MSRP SEND (step 7b1, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-3				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-file"			
MIME-part-body	As described in Table 6.2.11.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.11.3.3-9: MSRP SEND (step 7b3, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.12.1-4				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-file"			
MIME-part-body	As described in Table 6.2.11.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.11.3.3-10: SIP BYE (step 8, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.1-1, condition MO_CALL				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Request-Line				
Request-URI	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Record-Route	not present			
Reason			RFC 3326 [X]	
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.2.11.3.3-11: SIP 200 (OK) (step 9, Table 6.2.11.3.2-1)

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.2-1, condition INVITE-RSP, MCDATA				
Information Element	**Value/remark**	**Comment**	**Reference**	**Condition**
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.11.3.3-13: SIP MESSAGE (step 10, Table 6.2.11.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.2-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
Message-body				
MIME body part		MCData Info		
MIME-part-body	As described in Table 6.2.1.3.3-14			
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the SS as described in Table 6.2.3.3.3-15			

Table 6.2.11.3.3-14: MCDATA-Info (Table 6.2.11.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3				
mcdata-info				
mcdata-Params				
request-type	not present			
mcdata-request-uri	px_MCDATA_ID_User_A			
mcdata-calling-group-id	px_MCDATA_Group_A			
mcdata-client-id	not present			

Table 6.2.11.3.3-15: FD NOTIFICATION (Table 6.2.11.3.3-13)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

Table 6.2.11.3.3-16: SIP 200 (OK) (step 11, Table 6.2.11.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Record-Route	not present			
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

6.2.12 On-network / File Distribution (FD) / FD Using Media Plane / Group Standalone FD / Client Terminated (CT)

6.2.12.1 Test Purpose (TP)

(1)

```
with { UE (MCDATA Client) registered and authorised for MCDATA Service }
ensure that {
  when { the MCDATA User receives a SIP INVITE to initiate a standalone group FD message using the
media plane }
    then { UE (MCDATA Client) responds by sending a SIP 200 (OK) message }
          }
```

(2)

```
with { UE (MCDATA Client) having responded to the SIP INVITE message that initiated a standalone
group FD message using the media plane }
ensure that {
  when { UE (MCDATA Client) receives an MSRP SEND message from the SS (MCDATA Server) }
    then { UE (MCDATA Client) responds with an MSRP 200 (OK) message }
          }
```

(3)

```
with { UE (MCDATA Client) having finished receiving the file from the SS (MCDATA server) }
ensure that {
  when { UE (MCDATA Client) receives a SIP BYE message to release communications }
    then { UE (MCDATA Client) responds with a SIP 200 (OK) message and then sends a "FILE DOWNLOAD
COMPLETED" disposition via a SIP MESSAGE message }
              }
```

6.2.12.2   Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 24.282, clauses 10.2.5.2.4, 12.2.1.1, 6.2.3.2, TS 24.582 clauses 7.1.3.1, 7.1.3.2. The following represents a copy/paste extraction of the requirements relevant to the test purpose; any references within the copy/paste text should be understood within the scope of the core spec they have been copied from. Unless otherwise stated, these are Rel-14 requirements.

[TS 24.282, clause 10.2.5.2.4]

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

   a) MCData client does not have enough resources to handle the call; or

   b) any other reason outside the scope of this specification;

   and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I_MESSAGE:

   a) shall extract the MCData ID of the originating MCData user from the initiator field (IDRi) of the I_MESSAGE as described in 3GPP TS 33.180 [26];

   b) shall convert the MCData ID to a UID as described in 3GPP TS 33.180 [26];

   c) shall use the UID to validate the signature of the MIKEY-SAKKE I_MESSAGE as described in 3GPP TS 33.180 [26];

   d) if authentication verification of the MIKEY-SAKKE I_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [45], and include warning text set to "136 authentication of the MIKEY-SAKKE I_MESSAGE failed" in a Warning header field as specified in subclause 4.9 and not continue with rest of the steps in this subclause; 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 [26]; and

      ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [26];

   NOTE: With the PCK successfully shared between the originating MCData client and the terminating MCData client, both clients are able to create an end-to-end secure session.

4) may display to the MCData user the MCData ID of the inviting MCData user;

5) may display to the MCData user the file meta-data of the incoming file as described by the SDP included in the received SIP INVITE request;

6) if the Mandatory indication IE of the FD SIGNALLING PAYLOAD contained in the application/vnd.3gpp.mcdata-signalling MIME body received in the SIP INVITE request is set to "MANDATORY", then:

    i) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

    ii) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

    iii) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

    iv) shall include the g.3gpp.mcdata.fd media feature tag in the Contact header field of the SIP 200 (OK) response;

    v) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in the Contact header field of the SIP 200 (OK) response;

    vi) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 10.2.5.2.2; and

    vii) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with the media plane as specified in 3GPP TS 24.582 [15] subclause 10.2.5.1.2.

On receipt of an indication from the media plane of the successful download of the file and if the received FD SIGNALLING PAYLOAD message contained an FD disposition request type IE requesting a file download completed update indication, then, the MCData client:

1) shall follow the procedures described in subclause 12.2.1.1.

[TS 24.282, clause 12.2.1.1]

The MCData client shall follow the procedures in this subclause to:

- indicate to an MCData 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 MCData function serving the MCData user that an SDS message was undelivered. The participating MCData function can store the message for later re-delivery;

- indicate to an MCData client that a request for FD was accepted, deferred or rejected; or

- indicate to an MCData client that a file download has been completed;

Before sending a disposition notification the MCData client needs to determine:

- the controlling MCData function that sent the SDS or FD message request. The MCData client determines the controlling MCData function from the contents of the <mcdata-controller-psi> element contained in the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SDS or FD message request;

- the group identity related to an SDS or FD message request received as part of a group communication. The MCData 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 MCData user targeted for the disposition notification. The MCData client determines the targeted MCData 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 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)   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 MCData ID of the targeted MCData user, according to rules and procedures of IETF RFC 5366 [18];

4)   shall insert in the SIP MESSAGE request an application/vnd.3gpp.mcdata-info+xml MIME body with an <mcdata-controller-psi> element containing the PSI of the controlling MCData function;

5)   if sending a disposition notification in response to an MCData group data request, shall include an <mcdata-calling-group-id> element set to the MCData group identity in the application/vnd.3gpp.mcdata-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].

[TS 24.282, clause 6.2.3.2]

In order to generate an FD notification, the MCData client:

1)   shall generate an FD NOTIFICATION message as specified in subclause 15.1.6; and

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

When generating an FD NOTIFICATION message as specified in subclause 15.1.6, the MCData client:

1)   if sending a file download accept notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST ACCEPTED" as specified in subclause 15.2.6;

2)   if sending a file download reject notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST REJECTED" as specified in subclause 15.2.6;

3)   if sending a file download deferred notification, shall set the FD disposition notification type IE as "FILE DOWNLOAD REQUEST DEFERRED" as specified in subclause 15.2.6;

4)   shall set the Conversation ID to the value of the Conversation ID that was received in the FD message as specified in subclause 15.2.9;

5)   shall set the Date and time IE to the current time as specified in subclause 15.2.8; and

6)   if sending a file download completed notification:

   a)   shall set the FD disposition notification type IE as "FILE DOWNLOAD COMPLETED" as specified in subclause 15.2.6;

   b)   shall set the Message ID to the value of the Message ID that was received in the FD message as specified in subclause 15.2.10;

   c)   if the FD message was destined for the user, shall not include an Application ID IE as specified in subclause 15.2.7; and

   d)   if the FD message was destined for an application, shall include an Application ID IE set to the value of the Application ID that was included in the FD message as specified in subclause 15.2.3.

[TS 24.582, clause 7.1.3.1]

Upon receiving an indication to establish MSRP connection for file distribution as the terminating client, the MCData client:

1. shall act as an MSRP client according to IETF RFC 6135 [12];

2. shall act either as an active endpoint or as an passive endpoint to open the transport connection, according to IETF RFC 6135 [12];

3. shall establish the MSRP connection according to the MSRP connection parameters in the SDP offer received in the SIP INVITE request according to IETF RFC 4975 [11];

4. if acting as an "active" endpoint, shall send an empty MSRP SEND request to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint according to the rules and procedures of IETF RFC 4975 [11] and IETF RFC 6135 [12];

Once the MSRP session is established, the MCData client:

1. on receipt of an MSRP request in the MSRP session, shall follow the rules and procedures defined in IETF RFC 4975 [11] and in IETF RFC 6714 [13];

2. If an MSRP SEND request indicates the use of chunking, shall wait until all further MSRP SEND requests for the remaining chunks have been received and shall reassemble the entire set of MSRP requests into the file before delivering the content to the application; and

3. shall handle the received content as described in subclause 7.1.3.2.

[TS 24.582, clause 7.1.3.2]

Upon receiving a file, the MCData client:

1. shall decode the contents of the application/vnd.3gpp.mcdata-file MIME body; and

2. once all the chunks of the file are successfully received, shall indicate to the signalling plane that the file download is completed.

6.2.12.3   Test description

6.2.12.3.1   Pre-test conditions

System Simulator:

- SS (MCDATA Server)

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

IUT:

- UE (MCDATA Client)

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

Preamble:

- The UE has performed the Generic Test Procedure for MCDATA UE registration as specified in TS 36.579-1 [2], subclause 5.4.2B.

- The MCDATA User performs the Generic Test Procedure for MCDATA Authorization/Configuration and Key Generation as specified in TS 36.579-1 [2], subclause 5.3.2B.

- UE States at the end of the preamble

- The UE is in E-UTRA Registered, Idle Mode state.

- The MCDATA Client Application has been activated and User has registered-in as the MCDATA User with the Server as active user at the Client.

6.2.12.3.2 Test procedure sequence

Table 6.2.12.3.2-1: Main Behaviour

St	Procedure	U - S	Message	TP	Verdict
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.4B 'Generic Test Procedure for MCData CT communication in E-UTRA'. The test sequence below shows only the MCData relevant messages exchanged.	-	-	-	-
1	SS (MCDATA Server) initiates a standalone group FD message using the media plane with a disposition notification type of "FILE DOWNLOAD COMPLETED UPDATE".	<--	SIP INVITE	-	-
2	Check: Does the UE (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	1	P
3	SS (MCDATA Server) responds with a SIP ACK message	<--	SIP ACK	-	-
4	The SS (MCDATA Server) sends an empty MSRP SEND message to bind the MSRP connection to the MSRP session from the perspective of the passive endpoint.	<--	MSRP SEND	-	-
5	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
6	The SS (MCDATA Server) sends a MSRP SEND message.	<--	MSRP SEND	-	-
7	Check: Does the UE (MCDATA Client) respond with a MSRP 200 (OK) message?	-->	MSRP 200 (OK)	2	P
8	The SS (MCDATA Server) sends a SIP BYE message upon receipt of a MSRP 200 (OK) for the last MSRP SEND message.	<--	SIP BYE	-	-
9	Check: Does the (MCDATA Client) respond with a SIP 200 (OK) message?	-->	SIP 200 (OK)	3	P
-	EXCEPTION: SS (MCDATA Server) releases the E-UTRA connection.	-	-	-	-
-	EXCEPTION: The E-UTRA/EPC actions which are related to the MCDATA call establishment are described in TS 36.579-1 [2], subclause 5.4.3B 'Generic Test Procedure for MCData CO communication in E-UTRA'. The test sequence below shows only the MCDATA relevant messages exchanged.	-	-	-	-
11	Check: Does the UE (MCDATA Client) respond with a disposition notification of "FILE DOWNLOAD COMPLETED"?	-->	SIP MESSAGE	3	P
12	SS (MCDATA Server) responds with a SIP 202 (Accepted) message	<--	SIP 202 (Accepted)	-	-
-	EXCEPTION: SS releases the E-UTRA connection.	-	-	-	-

6.2.12.3.3 Specific message contents

Table 6.2.12.3.3-1: SIP INVITE (step 1, Table 6.2.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.5.2-1, condition MCDATA				
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31]	
feature-param	"+g.3gpp.mcdata.fd"			
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata. fd"			
P-Asserted-Service			TS 24.482 [31]	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata. sds"			
Accept-Contact				
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata. fd"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.12.3.3-2			
MIME body part		MCData Info		
MIME-part-body	MCData-Info as described in Table 6.2.12.3.3-3			
MIME body part		FD SIGNALLING PAYLOAD		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp. mcdata-signalling"			
MIME-part-body	FD Signalling Payload from the UE as described in TS 36.579-1 [2] Table 5.5.3.13.4-1.			

Table 6.2.12.3.3-2: SDP for SIP INVITE (Table 6.2.12.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string			
type	"type:" type "/" subtype	a binary file		
size	"size:" filesize-value	filesize-value is an integer		
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)		
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created			

Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.2-3

Table 6.2.12.3.3-3: MCDATA-Info (Table 6.2.12.3.3-1)

Information Element	Value/remark	Comment	Reference	Condition
mcdata-info				
mcdata-Params				
request-type	"group-fd"			

Derivation Path: TS 36.579-1 [2], Table 5.5.3.2.2-3, condition MCD_grp

Table 6.2.12.3.3-4: SIP 200 (OK) (step 2, Table 6.2.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Record-Route	not present			
Session-Expires				
refresher	"uas"			
Contact				
feature-param	px_MCDATA_Session_ Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session		
Message-body				
MIME body part		SDP message		
MIME-part-body	As described in Table 6.2.12.3.3-5			
MIME body part	not present	MCData Info		

Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA

Table 6.2.12.3.3-5: SDP for SIP 200 (OK) (Table 6.2.12.3.3-4)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.1.1-3				
Session description:				
Origin		o= line		
sess-id	same value as received in INVITE message			
sess-version	same value as received in INVITE message			
Session Information	same value as received in INVITE message			
Bandwidth		b= line		
bandwidth	same value as received in INVITE message			
Media descriptions				
media attribute		a= line attribute = accept-types		
accept-types	"application/vnd.3gpp. mcdata-signalling"			
media attribute		a= line attribute = file-selector	TS 24.282 [31] clause 10.2.5.2.1	
name	"name:" filename-string			
type	"type:" type "/" subtype	a binary file		
size	"size:" filesize-value	filesize-value is an integer		
hash	"hash:" hash-algorithm ":" hash-value	hash-algorithm = token hash-value = 2HEXDIG *(":" 2HEXDIG)		
media attribute		a= line attribute = file-date	TS 24.282 [31] clause 10.2.5.2.1	
creation	the date the file was created			
media attribute		a= line attribute = setup		
role	"passive"			

Table 6.2.12.3.3-6: MSRP SEND (step 6, Table 6.2.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.12.1.2-1				
MIME body part		FD DATA PAYLOAD		
MIME-Content-Type	"application/vnd.3gpp. mcdata-payload"			
MIME-part-body	As described in Table 6.2.12.3.3-7			
MIME body part	Not present	SDS SIGNALLING PAYLOAD		
MIME body part	Not present	SDS DATA PAYLOAD		

Table 6.2.12.3.3-7: FD Data Payload (Table 6.2.12.3.3-6)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.3.9-2, condition MCD_grp				
Payload				
Payload content type	"00000010"	BINARY		
Payload contents	the file to be uploaded			

Table 6.2.12.3.3-8: SIP BYE (step 8, Table 6.2.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.2.2-1, condition MT_CALL				
Request-Line				
Request-URI	px_MCDATA_Session_Identity	The MCData session identity. The MCData session identity is a SIP URI, which identifies the MCData session	TS 24.282 [31] clause 9.2.3.2.3	
Reason				
reason-value	"SIP"			
protocol-cause	"cause="200""			
reason-text	"text="transmission succeeded""			

Table 6.2.12.3.3-9: SIP 200 (OK) (step 9, Table 6.2.12.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.17.1.1-1, condition INVITE-RSP, MCDATA				
Content-Type	not present			
Content-Length				
value	"0"	No message body included		

Table 6.2.12.3.3-10: SIP MESSAGE (step 11, Table 6.2.2.3.2-1)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 36.579-1 [2], Table 5.5.2.7.1-1, condition MCDATA, PRIVATE-CALL				
Accept-Contact			TS 24.282 [31] clause 6.2.4.1	
ac-value				
feature-param	"+g.3gpp.icsi-ref=urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
ac-value[2]				
feature-param	"+g.3gpp.mcdata.fd"			
req-param	"require"			
explicit-param	"explicit"			
P-Preferred-Service			TS 24.282 [31] clause 6.2.4.1	
Service-ID	"urn:urn-7:3gpp-service.ims.icsi.mcdata.fd"			
P-Preferred-Identity				
PPreferredID-value	px_MCDATA_ID_User_A	The public user identity		
Message-body				
MIME body part	not present	MCData Info		
MIME body part	not present	SDS SIGNALLING PAYLOAD		
MIME body part	not present	DATA PAYLOAD		
MIME body part		FD NOTIFICATION		
MIME-part-headers				
MIME-Content-Type	"application/vnd.3gpp.mcdata-signalling"			
MIME-part-body	FD NOTIFICATION from the UE As described in Table 6.2.2.3.3-11			

Table 6.2.12.3.3-11: FD NOTIFICATION (Table 6.2.2.3.3-10)

Information Element	Value/remark	Comment	Reference	Condition
Derivation Path: TS 24.282 [31], Table 15.1.6.1-1				
FD notification message identity	"00000110"	FD NOTIFICATION	TS 24.282 [31] clause 15.2.2	
FD disposition notification type	"00000011"	FILE DOWNLOAD COMPLETED	TS 24.282 [31] clause 15.2.6	
Date and time	The current date and time	The Date and time value is an unsigned integer containing UTC time of the time when a message was sent, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds).	TS 24.282 [31] clause 15.2.8	
Conversation ID	same value as received in MESSAGE	The Conversation ID contains a number uniquely identifying the conversation. The value is a universally unique identifier.	TS 24.282 [31] clause 15.2.9	
Message ID	same value as received in MESSAGE	The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier	TS 24.282 [31] clause 15.2.10	
Application ID	not present		TS 24.282 [31] clause 15.2.7	

7　Off-Network Test Scenarios

This feature is not specified in the present version of the document.

Annex A (informative): Change history

Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2018-08	RAN5#80	R5-184608	-	-	-	Introduction of TS 36.579-7	0.0.2
2018-08	RAN5#80	R5-185143	-	-	-	Draft TS 36.579-7 v003	0.0.3
2019-03	RAN5#82	R5-192245	-	-	-	Draft TS 36.579-7 v005	0.0.5
2019-09	RAN5#84	R5-196352	-	-	-	Draft TS 36.579-7 v010	0.1.0
2019-11	RAN5#85	R5-198829	-	-	-	Draft TS 36.579-7 v021	0.2.1
2020-05	RAN5#87	R5-202051	-	-	-	Draft TS 36.579-7 v030	0.3.0
2020-07	RAN#88	RP-200718	-	-	-	Draft version for information purposes to the RAN Plenary	1.0.0
2020-08	RAN5#88	R5-203529	-	-	-	draft TS 36.579-7 v1.1.0	1.1.0
2020-09	RAN#89	RP-201797	-	-	-	Draft version for approval to move the spec under revision control to the RAN Plenary	2.0.0
2020-09	RAN#89	-	-	-	-	upgraded to v14.0.0 with small editorial changes	14.0.0

History

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