**3GPP TSG-CT WG1 Meeting #141-e** **C1-232812**

**E-Meeting, 17th – 21st April 2023 *was* C1-232371**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **24.379** | **CR** | **0870** | **rev** | **2** | **Current version:** | **18.2.1**  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Enhancements to remotely initiated call request procedure to support pre-emptive and commencement mode |
|  |  |
| ***Source to WG:*** | Samsung Research America |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | enh4MCPTT-CT |  | ***Date:*** | 2023-04-17 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The stage-2 has enhanced the remotely initiated call request procedure to support pre-emptive priority, commencement mode and an indication in the call request that the call is triggered due to receiving a Remotely initiated call request. The corresponding information flow and procedure of the Remotely initiated MCPTT call request are in the TS 23.379 clauses 10.16.2.1 and 10.16.3.1, respectively. The corresponding call setup procedures are updated in clauses 10.6.2.2.7, 10.6.2.2.8, 10.6.2.2.9, 10.7.2.1.1, 10.7.2.1.2, and 10.7.2.1.2a.This CR is trying to propose enhancements to the stage-3 procedure according to the stage-2 information flow and procedures. |
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| ***Summary of change:*** | The remotely initiated call procedures are enhanced to include the additional call setup parameters ric-app-level-priority, and ric-commencement-mode.The call setup procedures are enhanced using the newly defined parameters. |
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| ***Consequences if not approved:*** | The stage-2 enhancements for the remotely initiated call will not be reflected in the stage-3 procedure. The user can not request additional call setup parameters, and there will not be any indication of a remotely initiated call. |
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| ***Clauses affected:*** | 10.1.1.2.1.1, 10.1.1.2.1.2, 10.1.5.2.1, 10.1.5.2.2, 11.1.1.2.1.1, 11.1.1.2.1.2, 11.1.7.2.1, 11.1.7.2.2, F.1.2 and F.1.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* First Change \* \* \* \*

###### 10.1.1.2.1.1 Client originating procedures

Upon receiving a request from an MCPTT user to establish an MCPTT prearranged group session the MCPTT client shall determine whether the group document contains a <list-service> element that contains a <preconfigured-group-use-only> element. If a <preconfigured-group-use-only> element exists and is set to the value "true", then the MCPTT client:

1) should indicate to the MCPTT user that calls are not allowed on the indicated group; and

2) shall skip the remainder of this procedure.

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

The MCPTT client:

1) if the MCPTT user has requested the origination of an MCPTT emergency group call or is originating an MCPTT prearranged group call and the MCPTT emergency state is already set, the MCPTT client shall comply with the procedures in clause 6.2.8.1.1;

2) if the MCPTT user has requested the origination of an MCPTT imminent peril group call, the MCPTT client shall comply with the procedures in clause 6.2.8.1.9;

3) if the MCPTT user has requested the origination of a broadcast group call, the MCPTT client shall comply with the procedures in clause 6.2.8.2;

4) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

6) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;

7) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

8) should include the "timer" option tag in the Supported header field;

9) should include the Session-Expires header field according to IETF RFC 4028 [7]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

10) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCPTT function serving the MCPTT user;

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

11) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

12) if the MCPTT client emergency group state for this group is set to "MEG 2: in-progress" or "MEG 4: confirm-pending", the MCPTT client shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.2;

13) if the MCPTT client imminent peril group state for this group is set to "MIG 2: in-progress" or "MIG 4: confirm-pending" shall include the Resource-Priority header field and comply with the procedures in clause 6.2.8.1.12;

14) shall contain in an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

a) the <session-type> element set to a value of "prearranged";

b) the <mcptt-request-uri> element set to the group identity;

c) the <mcptt-client-id> element set to the MCPTT client ID of the originating MCPTT client;

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

d) if the group identity identifies a temporary group or a group regroup based on preconfigured group,, the <associated-group-id> element set to the MCPTT group ID of a constituent group the MCPTT client is member of;

e) if the MCPTT client is aware of active functional aliases, and an active functional alias is to be included in the initial SIP INVITE request, the <anyExt> element with the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The MCPTT client is informed about temporary groups regrouping MCPTT groups that the user is a member of as specified in 3GPP TS 24.481 [31]. The MCPTT client is informed about regroups based on a preconfigured group of MCPTT groups that the user is member of and affiliated to as specified in clause 16 of the present document.

NOTE 4: If the MCPTT user selected a TGI or the identity of a group regroup based on a preconfigured group where there are several constituent MCPTT groups where the MCPTT user is a member, the MCPTT client selects one of those MCPTT groups.

NOTE 5: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

f) if the MCPTT user has requested an application priority, the <anyExt> element with the <user-requested-priority> element set to the user provided value; and

g) if the call request is a result of receiving a remotely initiated call request, shall include the <anyExt> element with the <remotely-initiated-call-request-ind> element set to "true";

15) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarifications given in clause 6.2.1;

16) if an implicit floor request is required, shall indicate this as specified in clause 6.4 and

a) if the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true", shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element; and

17) shall send the SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

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

1) shall interact with the user plane as specified in 3GPP TS 24.380 [5];

2) if the MCPTT emergency group call state is set to "MEGC 2: emergency-call-requested" or "MEGC 3: emergency-call-granted" or the MCPTT imminent peril group call state is set to "MIGC 2: imminent-peril-call-requested" or "MIGC 3: imminent-peril-call-granted", the MCPTT client shall perform the actions specified in clause 6.2.8.1.4;

2A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and

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

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

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

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

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

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

###### 10.1.1.2.1.2 Client terminating procedures

In the procedures in this clause:

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

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

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

The MCPTT client:

1) may reject the SIP INVITE request if any of the following conditions are met:

a) MCPTT client does not have enough resources to handle the call;

b) the number of the maximum simultaneous MCPTT emergency group calls supported for the specific calling functional alias as specified in the <MaxSimultaneousEmergencyGroupCalls> element within the <FunctionalAliasList> list element of the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) has been reached; or

c) any other reason outside the scope of this specification;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in clause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this clause;

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

3) shall check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];

4) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":

a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency group call and:

i) should display the MCPTT ID of the originator of the MCPTT emergency group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body;

ii) should display the MCPTT group identity of the group with the emergency condition contained in the <mcptt-calling-group-id> element; and

iii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information;

b) shall set the MCPTT emergency group state to "MEG 2: in-progress";

c) shall set the MCPTT imminent peril group state to "MIG 1: no-imminent-peril"; and

d) shall set the MCPTT imminent peril group call state to "MIGC 1: imminent-peril-gc-capable"; otherwise

5) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <imminentperil-ind> element set to a value of "true":

a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT imminent peril group call and:

i) should display the MCPTT ID of the originator of the MCPTT imminent peril group call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

ii) should display the MCPTT group identity of the group with the imminent peril condition contained in the <mcptt-calling-group-id> element; and

b) shall set the MCPTT imminent peril group state to "MIG 2: in-progress";

6) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;

6A) may display to the MCPTT user the functional alias of the inviting MCPTT user;

6B) if the <remotely-initiated-call-request-ind> element is included in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request, may indicate to the MCPTT user that the received call request is a result of receiving a remotely initiated call request;

7) shall perform the automatic commencement procedures specified in clause 6.2.3.1.2 if one of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode; or

b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client allows the call to be answered with automatic commencement mode;

8) shall perform the manual commencement procedures specified in clause 6.2.3.2.2 if one of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is to use manual commencement mode; or

b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; and

9) when the SIP 200 (OK) response to the SIP INVITE request is sent, may subscribe to the conference event package as specified in clause 10.1.3.1.

\* \* \* Next Change \* \* \* \*

##### 10.1.5.2.1 Remotely initiated group call initiation request procedures

Upon receiving a request from the requesting MCPTT user to send a remotely initiated group call request to the remote MCPTT user for a targeted MCPTT group, the MCPTT client:

1) if:

a) the <allow-request-remote-init-group-call> element of the <ruleset> element is not present in the requesting MCPTT user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false":

 then:

a) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the remote MCPTT user; and

b) shall skip the rest of the steps of the present clause;

1A) shall determine whether the group document contains a <list-service> element that contains a <preconfigured-group-use-only> element. If a <preconfigured-group-use-only> element exists and is set to the value "true", then the MCPTT client:

a) should indicate to the MCPTT user that calls are not allowed on the indicated group; and

b) shall skip the remainder of this procedure;

2) if:

a) the requesting MCPTT user has indicated that the affiliation status of the remote MCPTT user to the targeted MCPTT group needs to be verified; and

b) the <allow-request-affiliated-groups> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "false";

i) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to request the affiliation status of other MCPTT users; and

ii) shall skip the rest of the steps of the present clause; and

c) the <allow-request-affiliated-groups> element of the of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true";

 then:

a) shall invoke the procedures of clause 9.2.1.3 to determine if the remote MCPTT user is affiliated to the targeted MCPTT group; and

b) if the remote MCPTT user is determined to not be affiliated to the targeted MCPTT group:

i) if the <allow-request-to-affiliate-other-users> of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "false":

A) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the targeted MCPTT user; and

B) shall skip the rest of the steps of the present clause; and

ii) if the <allow-request-to-affiliate-other-users> of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the requesting MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true";

A) shall invoke the procedures of clause 9.2.1.2 to affiliate the remote MCPTT user to the targeted MCPTT group by the requesting MCPTT user;

B) if the procedures of clause 9.2.1.2 were not successful:

I) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated group call request to the remote MCPTT user; and

II) shall skip the rest of the steps of the present clause; and

C) upon receiving a SIP NOTIFY request according to 3GPP TS 24.229 [4], IETF RFC 3856 [51], and IETF RFC 6665 [26]:

I) if the SIP NOTIFY request contains an application/pidf+xml MIME body indicating per-user affiliation information constructed according to clause 9.3.1, shall determine if the per user affiliation information indicates that the remote MCPTT user is affiliated;

II) if per user affiliation information in the received SIP NOTIFY request indicates that the remote MCPTT user is not affiliated to the targeted MCPTT group, should indicate to the requesting MCPTT user that the remote MCPTT user cannot be affiliated to the targeted MCPTT group; and

III) if it is determined in the previous step that the remote MCPTT user cannot be affiliated to the targeted MCPTT group, shall skip the rest of the steps of the present clause;

3) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:

a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;

b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];

d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:

i) the <mcptt-request-uri> set to the MCPTT group identity of the targeted MCPTT group for the remotely initiated call; and

ii) an <anyExt> element containing:

A) the <request-type> element set to a value of "remotely-initiated-group-call-request";

B) the <notify-remote-user> element set to a value of "true" if the requesting MCPTT user has indicated that the remote MCPTT user be notified of the remotely initiated group call request;

C) the <notify-remote-user> element set to a value of "false" if the requesting MCPTT user has indicated that the remote MCPTT user not be notified of the remotely initiated group call request; and

D) may include <ric-app-level-priority> element set to a value of the namespace and priority values as specified in IETF RFC 8101 [48], and MCPTT service configuration document (see the service configuration document in 3GPP TS 24.484 [50]) to be used by the remote MCPTT user to request an application level priority while initiating a call as a result of received remotely initiated call request;

e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the remote MCPTT user, according to rules and procedures of IETF RFC 5366 [20]; and

f) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the remote MCPTT user; and

4) shall send the SIP MESSAGE request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, should indicate to the requesting MCPTT user the failure of the sent remotely initiated group call request and not continue with the rest of the steps.

Upon receiving a "SIP MESSAGE request for remotely initiated group call response for terminating client", the MCPTT client:

1) shall determine the success or failure of the sent remotely initiated group call request from the value of the <remotely-initiated-call -outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and

2) should indicate to the requesting MCPTT user the success or failure of the sent remotely initiated group call request.

\* \* \* Next Change \* \* \* \*

##### 10.1.5.2.2 Remote client procedures for handling remotely initiated group call request

Upon receiving a "SIP MESSAGE request for remotely initiated group call request for terminating client", the MCPTT client:

1) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "true", may indicate to the remote MCPTT user that a remotely initiated call request to call the targeted MCPTT group has been received; and

2) if according to local policy on-demand sessions are to be used for remotely initiated group calls, shall invoke the procedures of clause 10.1.1.2.1.1 to originate an MCPTT group call to the targeted MCPTT group with the following clarifications:

a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":

i) shall not indicate to the remote MCPTT user that a remotely initiated call request to call the targeted MCPTT group has been received; and

ii) shall not give any indication to the remote MCPTT user that the remotely initiated call origination is in progress; and

b) if the <ric-app-level-priority> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of the namespace and priority value, may include Resource-Priority header field in the initial SIP INVITE request with the value received in the <ric-app-level-priority> element; and

3) if according to local policy pre-established sessions are to be used for remotely initiated group calls and a pre-established session is available, shall invoke the procedures of clause 10.1.1.2.2.1 to originate an MCPTT group call to the targeted MCPTT group with the following clarifications:

a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":

i) shall not indicate to the remote MCPTT user that a remotely initiated call request to call the targeted MCPTT group has been received; and

ii) shall not give any indication to the remote MCPTT user that the remotely initiated call origination is in progress; and

b) if the <ric-app-level-priority> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of the namespace and priority value, may include Resource-Priority header field in the initial SIP REFER request with the value received in the <ric-app-level-priority> element.

Editor's note: It is FFS that how the client will handle the request if according to local policy pre-established sessions are to be used for remotely initiated group calls and a pre-established session is not available.

Upon completion of the procedures of clause 10.1.1.2.1.1 or clause 10.1.1.2.2.1, the MCPTT client:

1) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:

a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;

b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4]; and

d) shall include in an application/resource-lists+xml MIME body the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/ vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and

e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:

i) the <mcptt-request-uri> set to the MCPTT group identity called by the remote MCPTT user; and

ii) an <anyExt> element containing:

A) the <response-type> element set to a value of "remotely-initiated-group-call-response";

B) if the procedures of clause 10.1.1.2.1.1 or clause 10.1.1.2.2.1 were successful in originating an MCPTT group call to the targeted MCPTT group, a <remotely-initiated-call-outcome> element set to a value of "success"; and

C) if the procedures of clause 10.1.1.2.1.1 or clause 10.1.1.2.2.1 were not successful in originating an MCPTT group call to the targeted MCPTT group, a <remotely-initiated-call-outcome> element set to a value of "fail";

2) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the requesting MCPTT user; and

3) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

\* \* \* Next Change \* \* \* \*

###### 11.1.1.2.1.1 Client originating procedures

Upon receiving a request from an MCPTT user to establish an MCPTT private call, or upon accepting a request to perform a private call transfer or a private call forwarding, the MCPTT client shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given below.

The MCPTT client:

1) shall set the Request-URI of the SIP INVITE request to a public service identity of the participating MCPTT function serving the MCPTT user;

2) if the MCPTT user has requested the origination of a first-to-answer call, if the <allow-request-first-to-answer-call> element of the <ruleset> element is not present in the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false", the MCPTT client shall inform the MCPTT user and shall exit this procedure;

3) if the MCPTT user has requested the origination of an MCPTT emergency private call or is originating an MCPTT private call and the MCPTT emergency state is already set, the MCPTT client:

a) shall, if this is an authorised request for an MCPTT emergency private call as determined by the procedures of clause 6.2.8.3.1.1, comply with the procedures in clause 6.2.8.3.2; and

b) should, if this is an unauthorised request for an MCPTT emergency private call as determined in step a) above, indicate to the MCPTT user that they are not authorised to initiate an MCPTT emergency private call;

4) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [4];

5) shall include the g.3gpp.mcptt media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

6) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

7) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP INVITE request;

8) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref contain with the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with parameters "require" and "explicit" according to IETF RFC 3841 [6];

9) for the establishment of a private call shall insert in the SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user or the functional alias to be called, according to rules and procedures of IETF RFC 5366 [20];

NOTE 1: The MCPTT client indicates whether an MCPTT ID or a functional alias is to be called as specified in step 14) c) ii).

10) for the establishment of a first-to-answer call shall insert in the SIP INVITE request according to rules and procedures of IETF RFC 5366 [20] a MIME resource-lists body with:

a) the MCPTT IDs of the potential target MCPTT users; or

b) the functional alias to be called;

NOTE 2: The MCPTT client indicates whether a list of MCPTT IDs or a functional alias is to be called as specified in step 15) b).

11) if an end-to-end security context needs to be established and if the MCPTT user is initiating a private call then:

a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];

b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];

c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];

d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the invited user as determined by the procedures of clause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];

e) shall generate a MIKEY-SAKKE I\_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78]; and

g) shall add the MCPTT ID of the originating MCPTT user to the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78]; and

f) shall sign the MIKEY-SAKKE I\_MESSAGE using the originating MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

12) shall include an SDP offer according to 3GPP TS 24.229 [4] with the clarification given in clause 6.2.1 and with a media stream of the offered media-floor control entity;

13) if implicit floor control is required, shall comply with the conditions specified in clause 6.4 and:

a) if the <allow-location-info-when-talking> element of the <ruleset> element of the MCPTT user profile document identified by the MCPTT ID of the calling MCPTT user (see the MCPTT user profile document in 3GPP TS 24.484 [50]) is set to a value of "true"; and

b) if location information has not yet been included in the SIP INVITE request;

 then shall include an application/vnd.3gpp.mcptt-location-info+xml MIME body with a <Report> element included in the <location-info> root element;

14) if the MCPTT user is initiating a private call then:

a) if force of automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];

b) if force of automatic commencement mode at the invited MCPTT client is not requested by the MCPTT user and:

i) if automatic commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

ii) if manual commencement mode at the invited MCPTT client is requested by the MCPTT user, shall include in the SIP INVITE request an Answer-Mode header field with the value "Manual" according to the rules and procedures of IETF RFC 5373 [18];

b1) if the MCPTT client initiates the private call upon accepting a request to perform a private call transfer, and the received SIP MESSAGE request contains a <replaces-header-value> element in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body then

i) shall include a SIP Replaces header field with the header field value set to the value in the <replaces-header-value> element of the incoming SIP MESSAGE request; and

b2) if the call request is a result of receiving a remotely initiated call request and if force of automatic commencement mode at the invited MCPTT client is requested in the received remotely initiated call request as described in the clause 11.1.7.2.2, shall include in the SIP INVITE request a Priv-Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18];

b3) if the call request is a result of receiving a remotely initiated call request and if force of automatic commencement mode at the invited MCPTT client is not requested in the received remotely initiated call request as described in the clause 11.1.7.2.2 and:

i) if automatic commencement mode at the invited MCPTT client is requested in the received remotely initiated call request as described in the clause 11.1.7.2.2, shall include in the SIP INVITE request an Answer-Mode header field with the value "Auto" according to the rules and procedures of IETF RFC 5373 [18]; and

ii) if manual commencement mode at the invited MCPTT client is requested in the received remotely initiated call request as described in the clause 11.1.7.2.2, shall include in the SIP INVITE request an Answer-Mode header field with the value "Manual" according to the rules and procedures of IETF RFC 5373 [18]; and

c) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element:

i) with the <session-type> element set to a value of "private";

ii) with the <call-to-functional-alias-ind> set to "true" if the functional alias is used as a target of the call request;

iii) if the MCPTT client needs to include an active functional alias in the initial SIP INVITE request, with the <functional-alias-URI> set to the URI of the used functional alias;

NOTE 3: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

iv) if the MCPTT user has requested an application priority, the <anyExt> element with the <user-requested-priority> element set to the user provided value; and

v) if the call request is a result of receiving a remotely initiated call request, shall include the <anyExt> element with the <remotely-initiated-call-request-ind> element set to "true";

14A) if the MCPTT client initiates the private call upon accepting a request to perform a private call transfer then:

a) shall include in the SIP INVITE request a Priv-Answer-Mode header field with the same value as in the MCPTT call to be transferred according to the rules and procedures of IETF RFC 5373 [18]; and

b) shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element:

i) with the <session-type> element set to a value of "private";

ii) if the MCPTT client needs to include an active functional alias in the initial SIP INVITE request, with the <functional-alias-URI> set to the URI of the used functional alias;

iii) with the <call-transfer-ind> element set to "true";

iv) if the MCPTT user has requested an application priority, the <anyExt> element with the <user-requested-priority> element set to the user provided value; and

v) if the call request is a result of receiving a remotely initiated call request, shall include the <anyExt> element with the <remotely-initiated-call-request-ind> element set to "true";

14B) if the MCPTT client initiates the private call upon accepting a request to perform a private call forwarding then:

a) shall include in the SIP INVITE request a Priv-Answer-Mode header field with the same value as in the MCPTT call to be forwarded according to the rules and procedures of IETF RFC 5373 [18];

b) if the "SIP MESSAGE request for forwarding private call request for terminating client" contained a <forwarding-reason> with a value of "immediate", shall append an entry containing the MCPTT ID of the forwarded MCPTT user to the <forwarding-immediate-list>;

c) if the "SIP MESSAGE request for forwarding private call request for terminating client" contained a <forwarding-reason> with a value of "no-answer", or "manual-input", append an entry containing the MCPTT ID of the forwarded MCPTT user to the <forwarding-other-list>;

d) shall cache both the <forwarding-immediate-list> and the <forwarding-other-list> until a final response for the SIP INVITE is received; and

e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with:

i) the <session-type> element set to a value of "private";

ii) if the MCPTT client needs to include an active functional alias in the initial SIP INVITE request, the <functional-alias-URI> set to the URI of the used functional alias;

iii) the <call-forwarding-ind> element set to "true";

iv) the <forwarding-immediate-list> element;

v) the <forwarding-other-list> element;

iv) if the MCPTT user has requested an application priority, the <anyExt> element with the <user-requested-priority> element set to the user provided value; and

v) if the call request is a result of receiving a remotely initiated call request, shall include the <anyExt> element with the <remotely-initiated-call-request-ind> element set to "true";

15) if the MCPTT user is initiating a first-to-answer call shall contain an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element;

a) with the <session-type> element set to a value of "first-to-answer";

b) with the <call-to-functional-alias-ind> set to "true" if the functional alias is used as a target of the call request;

c) if the MCPTT client needs to include an active functional alias in the initial SIP INVITE request, with the <functional-alias-URI> set to the URI of the used functional alias; and

NOTE 4: The MCPTT client learns the functional aliases that are activated for an MCPTT ID from procedures specified in clause 9A.2.1.3.

d) if the MCPTT user has requested an application priority, the <anyExt> element with the <user-requested-priority> element set to the user provided value;

16) if the MCPTT emergency private call state is set to either "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted" or the MCPTT emergency private priority state for this private call is set to "MEPP 2: in-progress", the MCPTT client shall comply with the procedures in clause 6.2.8.3.3; and

17) shall send SIP INVITE request towards the MCPTT server according to 3GPP TS 24.229 [4].

Upon receiving a SIP 183(Session Progress) response to the SIP INVITE request the MCPTT client:

1) may indicate the progress of the session establishment to the inviting MCPTT user.

Upon receiving a SIP 200 (OK) response to the SIP INVITE request the MCPTT client:

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

2) if the sent SIP INVITE request was for the origination of a first-to-answer call and the SDP answer contained in the received SIP 200 (OK) response contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I\_MESSAGE:

a) shall extract the MCPTT ID of the sender of the SIP 200 (OK) response from the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78];

b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I\_MESSAGE as described in 3GPP TS 33.180 [78];

d) if authentication verification of the MIKEY-SAKKE I\_MESSAGE fails:

i) if the sent SIP INVITE request was a request for an MCPTT emergency private call and if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested, the MCPTT client:

A) shall set the MCPTT emergency private call state to "MEPC 1: emergency-pc-capable";

B) if the MCPTT emergency private priority state of the private call is "MEPP 3: confirm-pending" shall set the MCPTT emergency private priority state of the private call to "MEPP 1: no-emergency"; and

C) if the sent SIP request for an MCPTT emergency private call contained an application/vnd.3gpp.mcptt-info+xml MIME body with an <alert-ind> element set to a value of "true", shall set the MCPTT private emergency alert state to "MPEA 1: no-alert". and

ii) shall release the session as specified in the procedures of clause 11.1.3.1.1.1 with the following clarifications:

A) shall include in the SIP BYE request an application/vnd.3gpp.mcptt-info+xml MIME body containing a <release-reason> element set to a value of "authentication of the MIKEY-SAKE I\_MESSAGE failed"; and

B) shall skip the remaining steps in the present clause; and

e) if the signature of the MIKEY-SAKKE I\_MESSAGE was successfully validated:

i) shall extract and decrypt the encapsulated PCK using the originating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [46];

NOTE 5: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

3) if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested" or "MEPC 3: emergency-pc-granted", shall perform the actions specified in clause 6.2.8.3.4; and

3A) may notify the answer state to the user (i.e. "Unconfirmed" or "Confirmed") if received in the P-Answer-State header field; and

4) shall notify the user that the call has been successfully established.

Upon receiving a SIP 300 (Multiple Choices) response to the SIP INVITE request the MCPTT client shall use the MCPTT ID of MCPTT user contained in the <mcptt-request-uri> element of the received application/vnd.3gpp.mcptt-info MIME body as the MCPTT ID of the invited MCPTT user and shall generate an initial SIP INVITE request by following the UE originating session procedures specified in 3GPP TS 24.229 [4], with the clarifications given in this clause and with the following additional clarifications:

1) shall insert in the newly generated SIP INVITE request a MIME resource-lists body with the MCPTT ID of the invited MCPTT user in the <mcptt-request-uri> element of the application/vnd.3gpp.mcptt-info MIME body in the received SIP 300 (Multiple Choices) response;

2) shall not include a <call-to-functional-alias-ind> element into the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

3) shall include a <called-functional-alias-URI> element into the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body with the target functional alias URI used in the initial SIP INVITE request for establishing a private call.

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

1) if the MCPTT emergency private call state is set to "MEPC 2: emergency-pc-requested"; or

2) if the MCPTT emergency private call state is set to "MEPC 3: emergency-pc-granted";

the MCPTT client shall perform the actions specified in clause 6.2.8.3.5.

On receiving a SIP INFO request where the Request-URI contains an MCPTT session ID identifying an ongoing session, the MCPTT client shall follow the actions specified in clause 6.2.8.3.7.

\* \* \* Next Change \* \* \* \*

###### 11.1.1.2.1.2 Client terminating procedures

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

The MCPTT client:

1) may reject the SIP INVITE request if any of the following conditions are met:

a) MCPTT client is already occupied in another session and the number of simultaneous sessions exceeds <MaxCall>, the maximum simultaneous MCPTT session for private call, as specified in TS 24.484 [50];

b) MCPTT client does not have enough resources to handle the call; or

c) any other reason outside the scope of this specification;

otherwise, continue with the rest of the steps.

NOTE 1: If the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <emergency-ind> element set to a value of "true", the participating MCPTT function can choose to accept the request.

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in clause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure according to <allow-failure-restriction> as specified in 3GPP TS 24.484 [50] and skip the rest of the steps of this clause;

3) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":

a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency private call and:

i) should display the MCPTT ID of the originator of the MCPTT emergency private call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

ii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information; and

b) if the session was established with a <session-type> of "first-to-answer"; shall temporarily save the current value of the MCPTT emergency private priority (MEPP) state;

NOTE 2: The current value of the MCPTT emergency private priority (MEPP) state needs to be temporarily saved because the MCPTT client may not be the one selected to terminate the first to answer emergency private call. Hence, the MCPTT client needs to be able to restore the MCPTT emergency private priority (MEPP) state to the saved value.

c) shall set the MCPTT emergency private priority state to "MEPP 2: in-progress" for this private call;

4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I\_MESSAGE:

a) shall extract the MCPTT ID of the originating MCPTT user from the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78];

b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I\_MESSAGE as described in 3GPP TS 33.180 [78];

d) if authentication verification of the MIKEY-SAKKE I\_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKE I\_MESSAGE failed" in a Warning header field as specified in clause 4.4; and

e) if the signature of the MIKEY-SAKKE I\_MESSAGE was successfully validated:

i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 3: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

5) if an end-to-end security context needs to be established and if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer" then:

a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];

b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];

c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];

d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the originator of the SIP INVITE request as determined by the procedures of clause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];

e) shall generate a MIKEY-SAKKE I\_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];

f) shall add the MCPTT ID of the MCPTT user to the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78]; and

NOTE 4: The initiator of the MIKEY-SAKKE I\_MESSAGE is in this case the terminating client from the perspective of the call.

g) shall sign the MIKEY-SAKKE I\_MESSAGE using the MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

6) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];

7) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;

7A) may display to the MCPTT user the functional alias of the inviting MCPTT user, if provided;

7B) if the <remotely-initiated-call-request-ind> element included in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request, may indicate to the MCPTT user that the received call request is a result of receiving a remotely initiated call request;

8) if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer":

a) shall notify the user of the incoming call;

b) shall not forward the first-to-answer call;

c) if the MCPTT user is busy on another call, shall send a SIP 486 (Busy Here) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this clause; and

d) if the MCPTT user does not answer the call within a time decided by the client implementation, the MCPTT client shall send a SIP 480 (Temporarily Unavailable) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this clause;

NOTE 5: In the conditions below, as the SIP layer implements the actions for commencement mode, it is assumed that the Answer-Mode or Priv-Answer-Mode header fields are set correctly in line with the setting of the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request.

9) shall perform the automatic commencement procedures specified in clause 6.2.3.1.1 if one of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode;

b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client is willing to answer the call with automatic commencement mode; or

c) SIP INVITE request contains a Priv-Answer-Mode header field with the value of "Auto"; and

10) shall perform the manual commencement procedures specified in clause 6.2.3.2.1 if either of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode;

b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; or

c) SIP INVITE request contains a Priv-Answer-Mode header field with the value of "Manual".

Upon receiving the SIP CANCEL request cancelling a SIP INVITE request for which a dialog exists at the MCPTT client and a SIP 200 (OK) response has not yet been sent to the SIP INVITE request then the MCPTT client:

1) if the session was established with a <session-type> of "first-to-answer", may notify the MCPTT user of the cancellation of the call;

2) if a temporary MCPTT emergency private priority (MEPP) state value was saved in step 3) b) above:

a) shall restore the MCPTT emergency private priority (MEPP) state to the temporary MCPTT emergency private priority (MEPP) state value; and

b) shall discard the temporary MCPTT emergency private priority (MEPP) state value;

3) shall send a SIP 200 (OK) response to the SIP CANCEL request according to 3GPP TS 24.229 [4]; and

4) shall send a SIP 487 (Request Terminated) response to the SIP INVITE request according to 3GPP TS 24.229 [4].

Upon receiving a SIP BYE request for an established dialog, the MCPTT client:

1) if the session was established with a <session-type> of "first-to-answer" and:

a) if the received SIP BYE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <release-reason> element set to a value of "not selected for call" or "authentication of the MIKEY-SAKE I\_MESSAGE failed":

i) if a temporary MCPTT emergency private priority (MEPP) state value was saved in step 3) b) above, shall restore the MCPTT emergency private priority (MEPP) state to the temporary MCPTT emergency private priority (MEPP) state value saved in step 3) b) above; and

b) may notify the MCPTT user of the release of the call; and

2) shall follow the procedures in clause 11.1.4.2.

NOTE 6: The above conditions for SIP CANCEL and SIP BYE cover the case for a first-to-answer call where the MCPTT server has already established the private call with another MCPTT client and needs to immediately cancel or release the dialogs with other MCPTT clients.

\* \* \* Next Change \* \* \* \*

##### 11.1.7.2.1 Remotely initiated private call initiation request procedures

Upon receiving a request from the requesting MCPTT user to send a remotely initiated private call request to the remote MCPTT user to originate a private call to an identified MCPTT user, the MCPTT client:

1) if:

a) the <allow-request-remote-init-private-call> element of the <ruleset> element is not present in the requesting MCPTT user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false";

then:

a) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a remotely initiated private call request to the remote MCPTT user; and

b) shall skip the rest of the steps of the present clause;

2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:

a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;

b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];

d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:

i) the <mcptt-called-party-id> element set to the MCPTT ID of the identified MCPTT user of the remotely initiated private call; and

ii) an <anyExt> element containing:

A) the <request-type> element set to a value of "remotely-initiated-private-call-request";

B) the <notify-remote-user> element set to a value of "true" if the requesting MCPTT user has indicated that the remote MCPTT user be notified of the remotely initiated private call request;

C) the <notify-remote-user> element set to a value of "false" if the requesting MCPTT user has indicated that the remote MCPTT user not be notified of the remotely initiated private call request;

D) may include <ric-app-level-priority> element set to a value of the namespace and priority values as specified in IETF RFC 8101 [48] and MCPTT service configuration document (see the service configuration document in 3GPP TS 24.484 [50]) to be used by the remote MCPTT user to request an application level priority while initiating a call as a result of received remotely initiated call request; and

E) may include <ric-commencement-mode> element set to:

I) a value of "force-auto-mode", if the requesting MCPTT user has indicated that the remote MCPTT user to request the force of automatic commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request;

II) a value of "auto-mode", if the requesting MCPTT user has indicated that the remote MCPTT user to request the automatic commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request; or

III) a value of "manual-mode", if the requesting MCPTT user has indicated that the remote MCPTT user to request the manual commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request;

e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the remote MCPTT user, according to rules and procedures of IETF RFC 5366 [20]; and

f) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user; and

3) shall send the SIP MESSAGE request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, should indicate to the requesting MCPTT user the failure of the sent remotely initiated private call request and not continue with the rest of the steps.

Upon receiving a "SIP MESSAGE request for remotely initiated private call response for terminating client", the MCPTT client:

1) shall determine the success or failure of the sent remotely initiated private call request from the value of the <remotely-initiated-call-outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request; and

2) should indicate to the requesting MCPTT user the success or failure of the sent remotely initiated private call request.

\* \* \* Next Change \* \* \* \*

##### 11.1.7.2.2 Remote client procedures for handling remotely initiated private call request

Upon receiving a "SIP MESSAGE request for remotely initiated private call request for terminating client", the MCPTT client:

1) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "true", may indicate to the remote MCPTT user that a remotely initiated private call request to call the identified MCPTT user has been received;

2) shall extract the MCPTT ID of the identified MCPTT user from the <mcptt-called-party-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request;

3) if according to local policy on-demand sessions are to be used for remotely initiated private calls, shall invoke the procedures of clause 11.1.1.2.1.1 to originate an MCPTT private call to the identified MCPTT user with the following clarifications:

a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":

i) shall not indicate to the remote MCPTT user that a remotely initiated private call request to call the identified MCPTT user has been received; and

ii) if a SIP 180 (Ringing) response or SIP 183 (Session Progress) response is received to the to the sent SIP INVITE request, shall not give any indication to the remote MCPTT user that the remotely initiated private call origination is in progress;

b) if the <ric-app-level-priority> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of the namespace and priority value, may include Resource-Priority header field in the initial SIP INVITE request with the value received in the <ric-app-level-priority> element; and

c) if the <ric-commencement-mode> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to:

i) a value of "force-auto-mode", may include in the initial SIP INVITE request a privileged answer mode with auto commencement mode (i.e. a Priv-Answer-Mode header field with the value "Auto") to force of automatic commencement mode at the invited MCPTT client;

ii) a value of "auto-mode", may include in the initial SIP INVITE request a answer mode with auto commencement mode (i.e. a Answer-Mode header field with the value "Auto") to request automatic commencement mode at the invited MCPTT client; or

iii) a value of "manual-mode", may include in the initial SIP INVITE request a answer mode with manual commencement mode (i.e. a Answer-Mode header field with the value "Manual") to request manual commencement mode at the invited MCPTT client; and

4) if according to local policy pre-established sessions are to be used for remotely initiated private calls and a pre-established session is available, shall invoke the procedures of clause 11.1.1.2.2.1 to originate an MCPTT private call to the identified MCPTT user with the following clarifications:

a) if the <notify-remote-user> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of "false":

i) shall not indicate to the remote MCPTT user that a remotely initiated private call request to call the identified MCPTT user has been received; and

ii) shall not give any indication to the remote MCPTT user that the remotely initiated private call origination is in progress;

b) if the <ric-app-level-priority> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set to a value of the namespace and priority value, may include Resource-Priority header field in the initial SIP REFER request with the value received in the <ric-application-level-priority> element; and

c) if the <ric-commencement-mode> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request is set:

i) to value of "force-auto-mode", may include in the initial SIP REFER request a privileged answer mode with auto commencement mode (i.e. a Priv-Answer-Mode header field with the value "Auto") to force of automatic commencement mode at the invited MCPTT client;

ii) to value of "auto-mode", may include in the initial SIP REFER request a answer mode with auto commencement mode (i.e. a Answer-Mode header field with the value "Auto") to request automatic commencement mode at the invited MCPTT client; or

iii) to value of "manual-mode", may include in the initial SIP REFER request to answer mode with manual commencement mode (i.e. a Answer-Mode header field with the value "Manual") to request manual commencement mode at the invited MCPTT client.

Upon completion of the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1, the MCPTT client:

1) if:

a) the MCPTT ID of the identified MCPTT user is identical to the <mcptt-calling-user-id> element contained in the <mcptt-Params> element of the <mcpttinfo> element contained in the application/vnd.3gpp.mcptt-info+xml MIME body contained in the received SIP MESSAGE request: and

b) the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user;

 then:

a) shall skip the remaining steps of the current clause;

NOTE: In this case, it is not necessary to send a response to the sender of the remotely initiated private call request as the sender and the terminating party of the successful private call origination are the same user and will be aware of the request's outcome.

2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:

a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;

b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];

d) shall include in an application/resource-lists+xml MIME body the MCPTT ID contained in the <mcptt-calling-user-id> element in the application/ vnd.3gpp.mcptt-info+xml MIME body of the received SIP MESSAGE request; and

e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element containing:

i) the <mcptt-called-party-id> set to the MCPTT ID of the identified MCPTT user called by the remote MCPTT user; and

ii) an <anyExt> element containing:

A) the <response-type> element set to a value of "remotely-initiated-private-call-response";

B) if the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were successful in originating an MCPTT private call to the identified MCPTT user, a <remotely-initiated-call-outcome> element set to a value of "success"; and

C) if the procedures of clause 11.1.1.2.1.1 or clause 11.1.1.2.2.1 were not successful in originating an MCPTT private call to the identified MCPTT user, a <remotely-initiated-call-outcome> element set to a value of "fail";

3) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user; and

4) shall send the SIP MESSAGE request according to rules and procedures of 3GPP TS 24.229 [4].

\* \* \* Next Change \* \* \* \*

## F.1.2 XML schema

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema

 xmlns:xs="http://www.w3.org/2001/XMLSchema"

 targetNamespace="urn:3gpp:ns:mcpttInfo:1.0"

 xmlns:mcpttinfo="urn:3gpp:ns:mcpttInfo:1.0"

 elementFormDefault="qualified"

 attributeFormDefault="unqualified"

 xmlns:xenc="[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)"

 xmlns:mgktp="urn:3gpp:ns:mcpttGKTP:1.0">

 <xs:import namespace="http://www.w3.org/2001/04/xmlenc#"/>

 <xs:import namespace="urn:3gpp:ns:mcpttGKTP:1.0"/>

 <!-- root XML element -->

 <xs:element name="mcpttinfo" type="mcpttinfo:mcpttinfo-Type" id="info"/>

 <xs:complexType name="mcpttinfo-Type">

 <xs:sequence>

 <xs:element name="mcptt-Params" type="mcpttinfo:mcptt-ParamsType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="mcptt-ParamsType">

 <xs:sequence>

 <xs:element name="mcptt-access-token" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="session-type" type="xs:string" minOccurs="0"/>

 <xs:element name="mcptt-request-uri" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="mcptt-calling-user-id" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="mcptt-called-party-id" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="mcptt-calling-group-id" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="required" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="emergency-ind" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="alert-ind" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="imminentperil-ind" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="broadcast-ind" type="xs:boolean" minOccurs="0"/>

 <xs:element name="mc-org" type="xs:string" minOccurs="0"/>

 <xs:element name="floor-state" type="xs:string" minOccurs="0"/>

 <xs:element name="associated-group-id" type="xs:string" minOccurs="0"/>

 <xs:element name="originated-by" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="MKFC-GKTPs" type="mgktp:singleTypeGKTPsType" minOccurs="0"/>

 <xs:element name="mcptt-client-id" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:element name="alert-ind-rcvd" type="mcpttinfo:contentType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="protectionType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="Normal"/>

 <xs:enumeration value="Encrypted"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="contentType">

 <xs:choice>

 <xs:element name="mcpttURI" type="xs:anyURI"/>

 <xs:element name="mcpttString" type="xs:string"/>

 <xs:element name="mcpttBoolean" type="xs:boolean"/>

 <xs:any namespace="##other" processContents="lax"/>

 <xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:attribute name="type" type="mcpttinfo:protectionType"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="anyExtType">

 <xs:sequence>

 <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 </xs:sequence>

 </xs:complexType>

 <!-- anyEXT elements – begin -->

 <xs:element name="ambient-listening-type" type="mcpttinfo:ambientListeningType"/>

 <xs:simpleType name="ambientListeningType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="remote-init"/>

 <xs:enumeration value="local-init"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="release-reason" type="mcpttinfo:releaseReasonType"/>

 <xs:simpleType name="releaseReasonType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="private-call-expiry"/>

 <xs:enumeration value="administrator-action"/>

 <xs:enumeration value="not selected for call"/>

 <xs:enumeration value="call-request-for-listened-to-client"/>

 <xs:enumeration value="call-request-initiated-by-listened-to-client"/>

 <xs:enumeration value="authentication of the MIKEY-SAKE I\_MESSAGE failed"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="request-type" type="mcpttinfo:requestTypeType"/>

 <xs:simpleType name="requestTypeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="private-call-call-back-request"/>

 <xs:enumeration value="private-call-call-back-cancel-request"/>

 <xs:enumeration value="group-selection-change-request"/>

 <xs:enumeration value="remotely-initiated-group-call-request"/>

 <xs:enumeration value="remotely-initiated-private-call-request"/>

 <xs:enumeration value="transfer-private-call-request"/>

 <xs:enumeration value="functional-alias-status-determination"/>

 <xs:enumeration value="forward-private-call-request"/>

 <xs:enumeration value="forward-private-call-settings-request"/>

 <xs:enumeration value="forward-private-call-settings-response"/>

 <xs:enumeration value="fa-group-binding-req"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="response-type" type="mcpttinfo:responseTypeType"/>

 <xs:simpleType name="responseTypeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="private-call-call-back-response"/>

 <xs:enumeration value="private-call-call-back-cancel-response"/>

 <xs:enumeration value="group-selection-change-response"/>

 <xs:enumeration value="remotely-initiated-group-call-response"/>

 <xs:enumeration value="remotely-initiated-private-call-response"/>

 <xs:enumeration value="transfer-private-call-response"/>

 <xs:enumeration value="forward-private-call-response"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="urgency-ind">

 <xs:simpleType>

 <xs:restriction base="xs:string">

 <xs:enumeration value="low"/>

 <xs:enumeration value="normal"/>

 <xs:enumeration value="high"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:element>

 <xs:element name="time-of-request" type="xs:dateTime"/>

 <xs:element name="selected-group-change-outcome" type="mcpttinfo:selectedGroupChangeOutcomeType"/>

 <xs:simpleType name="selectedGroupChangeOutcomeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="success"/>

 <xs:enumeration value="fail"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="affiliation-required" type="xs:boolean"/>

 <xs:element name="remotely-initiated-call-outcome" type="mcpttinfo:remotelyInitiatedCallOutcomeType"/>

 <xs:simpleType name="remotelyInitiatedCallOutcomeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="success"/>

 <xs:enumeration value="fail"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="notify-remote-user" type="xs:boolean"/>

 <xs:element name="functional-alias-URI" type="mcpttinfo:contentType"/>

 <xs:element name="user-requested-priority" type="xs:nonNegativeInteger"/>

 <xs:element name="emergency-alert-area-ind" type="xs:boolean"/>

 <xs:element name="group-geo-area-ind" type="xs:boolean"/>

 <xs:element name="non-acknowledged-user" type="mcpttinfo:contentType"/>

 <xs:element name="call-to-functional-alias-ind" type="xs:boolean"/>

 <xs:element name="emergency-ind-rcvd" type="mcpttinfo:contentType"/>

 <xs:element name="call-transfer-ind" type="xs:boolean"/>

 <xs:element name="multiple-devices-ind" type="mcpttinfo:contentType"/>

 <xs:element name="transfer-call-outcome" type="mcpttinfo:transferCallOutcomeType"/>

 <xs:simpleType name="transferCallOutcomeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="success"/>

 <xs:enumeration value="fail"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="called-functional-alias-URI" type="mcpttinfo:contentType"/>

 <xs:element name="call-forwarding-ind" type="xs:boolean"/>

 <xs:element name="forwarding-call-outcome" type="mcpttinfo:forwardingCallOutcomeType"/>

 <xs:simpleType name="forwardingCallOutcomeType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="success"/>

 <xs:enumeration value="fail"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="forwarding-immediate-list" type="mcpttinfo:mcpttIdListType"/>

 <xs:complexType name="mcpttIdListType">

 <xs:choice minOccurs="0" maxOccurs="unbounded">

 <xs:element name="entry" type="mcpttinfo:EntryType"/>

 <xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 </xs:choice>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:element name="forwarding-other-list" type="mcpttinfo:mcpttIdListType"/>

 <xs:complexType name="EntryType">

 <xs:sequence>

 <xs:element name="uri-entry" type="xs:anyURI"/>

 <xs:element name="display-name" type="xs:string" minOccurs="0"/>

 <xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:element name="forwarding-reason" type="mcpttinfo:forwardingReasonType"/>

 <xs:simpleType name="forwardingReasonType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="Immediate"/>

 <xs:enumeration value="No-Answer"/>

 <xs:enumeration value="Manual-Input"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:element name="binding-ind" type="xs:boolean"/>

 <xs:element name="binding-fa-uri" type="xs:anyURI"/>

 <xs:element name="unbinding-fa-uri" type="xs:anyURI"/>

 <xs:element name="replaces-header-value" type="xs:string"/>

 <xs:element name="transfer-announced-ind" type="xs:boolean"/>

 <!-- These elements can be added under the anyExt element of the mcpttinfo element -->

 <xs:element name="ric-app-level-priority" type="xs:string"/>

 <xs:element name="ric-commencement-mode" type="xs:string"/>

 <xs:element name="remotely-initiated-call-request-ind" type="mcpttinfo:contentType"/>

 <!-- anyEXT elements – end -->

</xs:schema>

\* \* \* Next Change \* \* \* \*

## F.1.3 Semantic

The <mcpttinfo> element is the root element of the XML document. The <mcpttinfo> element can contain subelements.

NOTE 1: The subelements of the <mcpttinfo> are validated by the <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> particle of the <mcpttinfo> element

If the <mcpttinfo> contains the <mcptt-Params> element then:

1) the <mcptt-access-token>, <mcptt-request-uri>, <mcptt-calling-user-id>, <mcptt-called-party-id>, <mcptt-calling-group-id>, <emergency-ind>, <alert-ind>, <imminentperil-ind>, <originated-by>, <mcptt-client-id>, <functional-alias-URI>, <called-functional-alias-URI>, <non-acknowledged-user>, and <multiple-devices-ind> elements can be included with encrypted content;

2) for each element in 1) that is included with content that is not encrypted:

a) the element has the "type" attribute set to "Normal";

b) if the element is one of the following elements: <mcptt-request-uri>, <mcptt-calling-user-id>, <mcptt-called-party-id>, <mcptt-calling-group-id>, <originated-by>, <functional-alias-URI>, <called-functional-alias-URI> or <non-acknowledged-user>, then the <mcpttURI> element is included;

c) if the element is one of the following elements:<mcptt-access-token> or <mcptt-client-id>, then the <mcpttString> element is included; and

d) if the element is one of the following elements: <emergency-ind>, <alert-ind>, <alert-ind-rcvd>, <imminentperil-ind>, <emergency-ind-rcvd>, <multiple-devices-ind>, or <remotely-initiated-call-request-ind>, then the <mcpttBoolean> element is included;

3) for each element in 1) that is included with content that is encrypted:

a) the element has the "type" attribute set to "Encrypted";

b) the <xenc:EncryptedData> element from the "[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)" namespace is included and:

i) can have a "Type" attribute can be included with a value of "<http://www.w3.org/2001/04/xmlenc#Content>";

ii) can include an <EncryptionMethod> element with the "Algorithm" attribute set to value of "http://www.w3.org/2009/xmlenc11#aes128-gcm";

iii) can include a <KeyInfo> element with a <KeyName> element containing the base 64 encoded XPK-ID; and

iv) includes a <CipherData> element with a <CipherValue> element containing the encrypted data.

NOTE 2: When the optional attributes and elements are not included within the <xenc:EncryptedData> element, the information they contain is known to sender and the receiver by other means.

If the <mcpttinfo> contains the <mcptt-Params> element then:

1) the <mcptt-access-token> can be included with the access token received during authentication procedure as described in 3GPP TS 24.482 [49];

2) the <session-type> can be included with:

a) a value of "chat" to indicate that the MCPTT client wants to join a chat group call

b) a value of "prearranged" to indicate the MCPTT client wants to make a prearranged group call;

c) a value of "private" to indicate the MCPTT client wants to make a private call;

d) a value of "first-to-answer" to indicate that the MCPTT client wants to make a first-to-answer call; or

e) a value of "ambient-listening" to indicate the MCPTT client wants to make an ambient listening call;

3) the <mcptt-request-uri> can be included with:

a) a value set to an MCPTT group ID or temporary MCPTT group ID when the <session-type> is set to a value of "prearranged" or "chat"; and

b) a value set to the MCPTT ID of the called MCPTT user when the <session-type> is set to a value of "private";

4) the <mcptt-calling-user-id> can be included, set to MCPTT ID of the originating user;

5) the <mcptt-called-party-id> can be included, set to the MCPTT ID of the terminating user;

6) the <mcptt-calling-group-id> can be included to indicate the MCPTT group identity to the terminating user;

7) the <required> can be included in a SIP 183 (Session Progress) from a non-controlling MCPTT function of an MCPTT group to inform the controlling MCPTT function that the group on the non-controlling MCPTT function has group members in the group document which are marked as <on-network-required>, as specified in 3GPP TS 24.481 [31];

8) the <emergency-ind> can be:

a) set to "true" to indicate that the call that the MCPTT client is initiating is an emergency MCPTT call; or

b) set to "false" to indicate that the MCPTT client is cancelling an emergency MCPTT call (i.e. converting it back to a non-emergency call)

9) the <alert-ind> can be:

a) set to "true" in an emergency call initiation to indicate that an alert to be sent; or

b) set to "false" when cancelling an emergency call which requires an alert to be cancelled also

10) if the <session-type> is set to "chat" or "prearranged":

a) the <imminentperil-ind> can be set to "true" to indicate that the call that the MCPTT client is initiating is an imminent peril group MCPTT call;

11) the <broadcast-ind> can be:

a) set to "true" indicates that the MCPTT client is initiating a broadcast group call; or

b) set to "false" indicates that the MCPTT client is initiating a non-broadcast group call;

12) the <mc-org> can be:

a) set to the MCPTT user's Mission Critical Organization in an emergency alert sent by the MCPTT server to terminating MCPTT clients;

13) the <floor-state> can be:

a) set to "floor-idle", if the floor is idle in a non-controlling MCPTT function; or

b) set to "floor-taken" if the floor state in a non-controlling MCPTT function is taken;

14) the <associated-group-id>:

a) if the <mcptt-request-uri> element contains a group identity then this element can include an MCPTT group ID associated with the group identity in the <mcptt-request-uri> element. E.g. if the <mcptt-request-uri> element contains a temporary group identity (TGI), then the <associated-group-id> element can contain the constituent MCPTT group ID;

15) the <originated-by>:

a) can be included, set to the MCPTT ID of the originating user of an MCPTT emergency alert when being cancelled by another authorised MCPTT user;

16) the <MKFC-GKTPs>:

a) contains a group key transport payload carrying one or more MKFC(s) and MKFC-ID(s) as described in3GPP TS 24.481 [31] clause 7.4, to be used for protection of multicast floor control signalling when the UE operates on the network;

17) the <mcptt-client-id>:

a) can be included, set to the MCPTT client ID of the MCPTT client that originated a SIP INVITE request, SIP REFER request, SIP REGISTER request, SIP PUBLISH request or SIP MESSAGE request;

18) the <alert-ind-rcvd>

a) can be set to true and included in a SIP MESSAGE to indicate that the emergency alert or cancellation was received successfully; and

19) the <anyExt> can be included with the following elements:

a) an <ambient-listening-type> element set to:

i) "remote-init" when the listening MCPTT user of an ambient listening call initiates the call; or

ii) "local-init" when the listened-to MCPTT user of an ambient listening call initiates the call;

b) a <release-reason> element set to:

i) "private-call-expiry" when the ambient listening call is release due to the expiry of the private call timer;

ii) "administrator-action" when the ambient listening call is released by an MCPTT administrator;

iii) "not selected for call" when the when a dialog is released with an MCPTT client that was not selected as the terminating client of a first-to-answer call;

iv) "call-request-for-listened-to-client" when there is a call request targeted to the listened-to client;

v) "call-request-initiated-by-listened-to-client" when there is a call request initiated by the listened-to client; or

vi) "authentication of the MIKEY-SAKE I\_MESSAGE failed" by a MCPTT client when the signature cannot be verified;

c) a <request-type> element set to:

i) "private-call-call-back-request" when a client initiates a private call call-back request;

ii) "private-call-call-back-cancel-request" when a client initiates a private call call-back cancel request;

iii) "group-selection-change-request" when a client initiates a group selection change request;

iv) "remotely-initiated-group-call-request" when a client initiates a remotely initiated group call request;

v) "remotely-initiated-private-call-request" when a client initiates a remotely initiated private call request;

vi) "transfer-private-call-request" when a client initiates a transfer private call request;

vii) "functional-alias-status-determination" when a client initiates a subscription to FA status determination request;

viii) "forward-private-call-request" when a client initiates a forward private call request; or

ix) "fa-group-binding-req" when a client initiates a request for binding of a functional alias with the MCPTT group(s) for the MCPTT user;

d) a <response-type> element set to:

i) "private-call-call-back-response" when a client responds to a private call call-back request;

ii) "private-call-call-back-cancel-response" when a client responds to a private call call-back cancel request;

iii) "group-selection-change-response" when a client responds to a group selection change request;

iv) "remotely-initiated-group-call-response" when a client responds to a remotely initiated call request;

v) "remotely-initiated-private-call-response" when a client responds to a remotely initiated private call request;

vi) "transfer-private-call-response" when a client responds to a transfer private call request;

vii) "forward-private-call-response" when a client responds to a forward private call request; or

e) an <urgency-ind> element:

i) set to a value of "low", "normal" or "high" to indicate the urgency of a private call call-back request;

f) a <time-of-request> element :

i) set to the date and time at which the private call call-back request was initiated, in the form: "YYYY-MM-DDThh:mm:ss" where:

- YYYY indicates the year;

- MM indicates the month;

- DD indicates the day;

- T indicates the start of the required time section;

- hh indicates the hour;

- mm indicates the minute; and

- ss indicates the second;

g) a <selected-group-change-outcome> element set to:

i) "success" when a client reports that it has successfully changed its selected group as requested by a received group selection change request; or

ii) "fail" when a client reports that it has failed to change its selected group as requested by a received group selection change request;

h) an <affiliation-required> element set to:

i) "true" when received by a client in a group-selection-change-request indicates that the client needs to affiliate to the specified group;

i) a <remotely-initiated-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received remotely initiated call request; or

ii) "fail" when a client reports that it has failed to initiated a call triggered as requested by a received group selection change request;

j) a <notify-remote-user> element set to:

i) "true" when the remote user is to be notified of a remotely initiated call request; or

ii) "false" when the remote user is to be notified of a received remotely initiated call request;

k) a <functional-alias-URI> element set to the value of the functional alias that is used together with the "mcptt-calling-user-id";

l) an <emergency-alert-area-ind> element set to:

i) "true" when the MCPTT client has entered an emergency alert area; or

ii) "false" when the MCPTT client has exited an emergency alert area;

m) a <group-geo-area-ind> element set to:

i) "true" when the MCPTT client has entered a group geographic area; or

ii) "false" when the MCPTT client has exited a group geographic area;

n) one or more <non-acknowledged-user> elements set to the MCPTT IDs of invited members to a group call that have not sent a SIP 200 (OK) response;

o) a <call-to-functional-alias-ind> element set to:

i) "true" when the MCPTT client is using a functional alias to identify the MCPTT IDs of the potential target MCPTT users; or

ii) "false" when the MCPTT client is using MCPTT IDs to identify the potential target MCPTT users;

p) the <emergency-ind-rcvd> element set to:

i) "true" and included in a SIP MESSAGE to indicate that the in-progress emergency cancellation request was received successfully;

q) a <call-transfer-ind> element set to:

i) "true" when the MCPTT client is making a private call as a result of a call transfer; or

ii) "false" when the MCPTT client is making a normal private call;

r) a <transfer-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received call transfer request; or

ii) "fail" when a client reports that it has failed to initiated a call triggered as requested by a received call transfer request;

s) a <called-functional-alias-URI> element set to the value of the functional alias to be called;

t) a <call-forwarding-ind> element set to:

i) "true" when the MCPTT client is making a private call as a result of a call forwarding; or

ii) "false" when the MCPTT client is making a normal private call;

u) a <forwarding-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received call forwarding request; or

ii) "fail" when a client reports that it has failed to initiate a call triggered as requested by a received call forwarding request;

v) a <forwarding- immediate-list> element containing the list of MCPTT IDs of MCPTT users that have already been forwarded because an immediate call forwarding has occurred in the same MCPTT call;

w) a <forwarding-other-list> element containing the list of MCPTT IDs of MCPTT users that have already been forwarded because a call forwarding on "No-Answer" or "Manual-Input" has occurred in the same MCPTT call;

x) a <forwarding-reason> element set to:

i) "Immediate" for call forwarding immediate;

ii) "No-Answer" for call forwarding no answer; or

iii) "Manual-Input" for call forwarding based on manual user input;

y) a <multiple-devices-ind> element set to:

i) "true" to indicate to the client that multiple clients are registered for the MCPTT user; or

ii) "false" to indicate to the client that no other clients are registered for the MCPTT user;

z) a <binding-ind> element set to:

i) "true" when the user wants to create a binding of a particular functional alias with the specified list of MCPTT groups for the MCPTT client; or

ii) "false" when the user wants to remove a binding of a particular functional alias from the specified list of MCPTT groups for the MCPTT client;

aa) a <binding-fa-uri> element set to:

i) a URI of a functional alias that shall be bound with the specified list of MCPTT groups for the MCPTT client;

ab) a <unbinding-fa-uri> element set to:

i) a URI of a functional alias that shall be unbound from the specified list of MCPTT groups for the MCPTT client;

ac) a <transfer-announced-ind> set to:

i) "true"indicating that the call is part of an announced MCPTT call transfer; or

ii) "false" indicating that the call is not part of an announced MCPTT call transfer;

ad) a<replaces-header-value> element set to the Call-ID SIP header field value, the from-tag, and the to-tag of the MCPTT private call to be transferred. The delimiter between the Call-ID, the from-tag, and the to-tag is the semicolon (;);

ae) a <user-requested-priority> element set to the non-negative integer value requested by the user as priorityAbsence of the <emergency-ind>, <alert-ind> and <imminentperil-ind> in a SIP INVITE or a SIP REFER request indicates that the MCPTT client is initiating a non-emergency private call or non-emergency group call;

af) a <ric-app-level-priority> of type "xs:string" set to a value of the namespace and priority values as specified in IETF RFC 8101 [48] and MCPTT service configuration document (see the service configuration document in 3GPP TS 24.484 [50]) to be used by the remote MCPTT user to request an application level priority while initiating a call as a result of received remotely initiated call request;

ag) a <ric-commencement-mode> of type "xs:string":

i) set to a value of "force-auto-mode" to indicate to remote MCPTT user to request the force of automatic commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request;

ii) set to a value of "auto-mode" to indicate to remote MCPTT user to request the automatic commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request; or

iii) set to a value of "manual-mode" to indicate to remote MCPTT user to request the manual commencement mode at the invited MCPTT client while initiating a call as a result of received remotely initiated call request; and

ah) a <remotely-initiated-call-request-ind> of type "mcpttinfo:contentType" element set to "true" to indicate that the call request is a result of receiving a remotely initiated call request.

Absence of the <broadcast-ind> in a SIP INVITE or a SIP REFER request indicates that the MCPTT client is initiating a non-broadcast group call.

Absence of the <floor-state> in a SIP 200 (OK) response from the non-controlling MCPTT function indicates that the floor is idle.

Absence of the <call-to-functional-alias-ind> in a SIP INVITE or a SIP REFER request for a first-to-answer call indicates the use of the MCPTT IDs of the potential target MCPTT users.

Absence of the <call-transfer-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not caused by a request for call transfer.

Absence of the <call-forwarding-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not caused by a request for call forwarding.

Absence of the <transfer-announced-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not part of a announced call transfer.

The recipient of the XML ignores any unknown element and any unknown attribute.

\* \* \* End of Changes \* \* \* \*