**3GPP TSG-CT WG1 Meeting #128-eC1-21xxxx**

**Electronic meeting, 25 February – 5 March 2021C1-210598**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.380** | **CR** | **0297** | **rev** | **1** | **Current version:** | **17.1.0** |  |
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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 |  |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** | NIST, FirstNet | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MCProtoc17, enh3MCPTT-CT | | | | |  | ***Date:*** | | | 2021-02-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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 can be 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17)* | |
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| ***Reason for change:*** | | The state transition diagram does not agree with the text resulting in non-deterministic (i.e., multiple) behaviors. Correct message names for the Floor Queued Cancel message. Explicitly stopping running timers when leaving states. Editorials | | | | | | | | |
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| ***Summary of change:*** | | Figure 6.2.4.1-1   * Any state   + Delete R: Floor Indicator from figure 6.2.4.1-1;   + Insert carriage return before Timer T134 expired; * Delete transition from Start-Stop to U: has permission state; * U: queued   + Insert ORs;   + Correct naming for Floor Queue Position Request;   + Changed Floor Granted to User Accepts in transition from U: queued to U: has permission; * U: pending request;   + Delete Floor Revoke;   + Insert Floor Taken; * U: pending release   + Delete Floor Ack;   + Insert OR.   6.2.4.4.9: Insert stopping of Timer T101 (Floor Request);  6.2.4.4.11: Insert stopping of Timer T101 (Floor Request); change curly quotes to straight quotes and correct placement; and correct message name;  6.2.4.6.1: delete misleading text;  6.2.4.7.2:insert stop all running timers;  6.2.4.7.3: delete all of text mark as void;  6.2.4.7.6: correct message type name and delete step 4;  6.2.4.9.2; remove extra space;  6.2.4.9.9: insert condition that Timer T132 is not running (i.e., Floor Granted not recevied) and insert Shall in step 3;  6.2.4.9.11: insert new step 3a to start T100 and set counter C100;  6.2.4.9.15: correct message type name and delete condition on a field that is not present in a Notification message;  11.1.1: Timer T101 - Delete condition that RX RTP stops timer; and;  Editorials (missing OR’s; corrections to straight quotes; and removal of extra spaces) | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Implementer’s choice as what to implement to the transitions contained in the state machine diagram or following only the transitions described in the text. It is unknown if the implementer will implement as per 6.2.4.1 when floor control messages are received when there is no specific procedure specified and discarded or does the implementer not discard the floor control messages because they are shown in the figure and define their own procedures for those transitions. Timers will expire in states where no procedures are defined.If Timer T101 is stopped when an RTP media packet is recdived, may hang in that state. Interoperability is jeopardized. Incorrect or unexpected behaviors. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.4.1, 6.2.4.4.9, 6.2.4.4.11, 6.2.4.6.1, 6.2.4.7.2, 6.2.4.7.3, 6.2.4.7.6, 6.2.4.9.2, 6.2.4.9.9, 6.2.4.9.11, 6.2.4.9.15, 11.1.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Correct cover page: remove “bis”;  Remove and from 6.2.4.7.6; Remove comma from 6.2.4.9.9; Remove and from 6.2.4.9.11 | | | | | | | | |

\* \* \* \* \* \* FIRST CHANGE \* \* \* \* \* \* \*

#### 6.2.4.1 General

The floor participant shall behave according to the state diagram and the state transitions specified in this subclause.

Figure 6.2.4.1-1 shows the state diagram for 'Floor participant state transition diagram for basic operation'.



Figure 6.2.4.1-1: Floor participant state transition diagram for basic operation.

State details are explained in the following subclauses.

If an RTP media packet or a floor control message arrives in a state where there is no specific procedure specified for the RTP media packets or the received floor control message, the floor participant shall discard the floor control message or the RTP media packet and shall remain in the current state.

NOTE 1: A badly formatted RTP packet or floor control message received in any state is ignored by the floor participant and does not cause any change of the current state.

NOTE 2: The state transition diagram is the same for groups configured for audio cut-in floor control but the U: queued state should never be visited.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.4.9 Receive Floor Queue Position Info message (R: Floor Queue Position Info)

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

1. if the first bit in the subtype of the Floor Queue Position Info message is set to '1' (Acknowledgment is required) as described in subclause 8.2.2, shall send a Floor Ack message. The Floor Ack message:

a. shall include the Message Type field set to '9' (Floor Queue Position Info); and

b. shall include the Source field set to '0' (the floor participant is the source);

2. shall provide floor request queued response notification to the MCPTT user;

3. may provide the queue position and priority to the MCPTT user;

3A. shall stop timer T101 (Floor Request); and4. shall enter the 'U: queued' state.

NOTE: For groups configured for audio cut-in floor control the floor participant will never receive Floor Queue Position Info.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.4.11 Receive Floor Taken message (R: Floor Taken)

Upon receiving a Floor Taken message, the floor participant:

1. if the first bit in the subtype of the Floor Taken message is set to '1' (Acknowledgment is required) as described in subclause 8.2.2, shall send a Floor Ack message. The Floor Ack message:

a. shall include the Message Type field set to '2' (Floor Taken); and

b. shall include the Source field set to '0' (the floor participant is the source);

2. may provide floor taken notification to the user;

3. if the Floor Indicator field is included and the type of call bit is set, may provide a notification to the user indicating the type of call;

4. if the Floor Indicator field is included and the I-bit is set to '1' (multi-talker), shall provide a notification to the user indicating the type of call and may provide a list of current talkers;

5. should start the optional timer T103 (End of RTP media) for each new talker as received in Floor Taken message;

6. if the identity of the floor participant is not included in the List of Granted Users, shall stop timer T100 (Floor Release); and

7. if:

a. the floor participant has requested the floor with pre-emptive floor priority; and

b. the Floor Taken message is received as a result of the floor being taken by another floor participant;

then remain in the 'U: pending request' state;

otherwise,

1. shall stop timer T101 (Floor Request); and
2. shall enter the 'U: has no permission' state.

NOTE: When the floor participant has requested the floor with/without pre-emptive floor priority, there is a possibility that this floor participant can also receive a Floor Granted creating a dual floor or Multi-talker scenario (multi-talker configuration limit reached or within the limit).

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.6.1 General

The floor participant is in this state when the floor participant is waiting for response to a Floor Release message.

In this state the floor participant can receive floor control messages and RTP media packets.

Timer T100 (Floor Release) is running in this state.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.7.2 Receive MCPTT call release – step 1 (R: MCPTT call release - 1)

Upon receiving an MCPTT call release step 1 request from the application and signalling plane when the MCPTT call is going to be released or when the floor participant is leaving the MCPTT call, the floor participant:

1. shall stop sending floor control messages and stop all running timers;

2. shall request the MCPTT client to stop sending RTP media packets; and

3. shall enter the 'Releasing' state.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.7.3 Void

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.7.6 Receive Response to Floor Queued Cancel Request message (R: Response to Floor Queued Cancel Request)

Upon receiving a Response to Floor Queued Cancel Request message, the floor participant:

1. if the first bit in the subtype of the Response to Floor Queued Cancel Request message is set to '1' (Acknowledgment is required) as described in subclause 8.2.2, shall send a Floor Ack message. The Floor Ack message:

a. shall include the Message Type field set to '14' (Floor Queued Cancel); and

b. shall include the Source field set to '0' (the floor participant is the source);

2. may provide the result of a message for cancellation of a queued floor request to the MCPTT user; and

3. shall stop the timer T134 (Floor Queued Cancel Request), if running.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.9.2 Receive RTP media packets (R: RTP media)

Upon receiving an indication from the media mixer in the MCPTT client that the media mixer is receiving RTP media packets, the floor participant:

1. shall request to the media mixer to start rendering received RTP media packets;

2. should restart timer T103 (End of RTP media) from which RTP packets were received; and

3. shall remain in the 'U: queued' state.

NOTE: RTP media packets can be received from multiple sources when dual floor control is applied by the floor control server (see subclause 6.3.6) or when multi-talker control is applied by the floor control server. The MCPTT client can differentiate between the different sources using the SSRC in the received RTP media packets. How the media mixer in the MCPTT client mixes the different RTP media stream sources is out of scope of the present document.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.9.9 Send Floor Queue Position Request message (S: Floor Queue Position Request)

Upon receipt of an indication from the MCPTT client to request the queue position and timer T132 is not running (i.e. a Floor Granted message has not been received), the floor participant:

1. shall send the Floor Queue Position Request message;

2. shall start timer T104 (Floor Queue Position Request) and initialize counter C104 (Floor Queue Position Request) to 1; and

3. shall remain in the 'U: queued' state.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.9.11 Timer T104 (Floor Queue Position Request) expired N times

When timer T104 (Floor Queue Position Request) expires by the upper limit of counter C104 (Floor Queue Position Request) times, the floor participant:

1. shall provide a floor queued timeout to the MCPTT client;

2. may set the first bit in the subtype of the Floor Release message to '1' (Acknowledgment is required) as described in subclause 8.2.2;

3. shall send the Floor Release message;

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

3a. shall start timer T100 (Floor Release) and initialise counter C100 (Floor Release) to 1; and

4. shall enter the 'U: pending Release' state.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

##### 6.2.4.9.15 Receive Floor Queued Cancel Notification message (R: Floor Queued Cancel Notification)

Upon receiving a Floor Queued Cancel Notification message, the floor participant:

1. if the first bit in the subtype of the Floor Queued Cancel Notification message is set to '1' (Acknowledgment is required) as described in subclause 8.2.2, shall send a Floor Ack message. The Floor Ack message:

a. shall include the Message Type field set to '14' (Floor Queued Cancel ); and

b. shall include the Source field set to '0' (the floor participant is the source); and

2. shall provide a floor queued cancellation notification to the MCPTT user;

3. may display the requesting user for a cancellation of a queued floor request to the user using information in the Requested Party's Identity field;

4. shall stop timer T104 (Floor Queue Position Request), if running; and

5. shall enter the 'U: has no permission' state.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \* \*

### 11.1.1 Timers in the on-network floor participant

The table 11.1.1-1 recommends timer values, describes the reason for starting the timer, normal stop and the action on expiry for the on-network floor participant procedures.

Table 11.1.1-1: Timers in the on-network floor participant

| Timer | Timer value | Cause of start | Normal stop | On expiry |
| --- | --- | --- | --- | --- |
| T100  (Floor Release) | Configurable as specified in 3GPP TS 24.483 [4].  (NOTE 1) | When the floor participant sends a Floor Release message. | Reception of a Floor Idle message or when the floor participant detects the receipt of RTP media. | If the counter is less than the upper limit of C100, a new Floor Release message is sent and counter is incremented by 1.  When the limit in C100 is reached, the floor participant stops sending the Floor Release message. |
| T101  (Floor Request) | Configurable as specified in 3GPP TS 24.483 [4].  (NOTE 2) | When the floor participant sends a Floor Request message.  T101 is also started when the application layer and signalling plane initiates a session as an implicit floor request using the "mc\_implicit\_request" as specified in clause 14. | Reception of a Floor Granted message, a Floor Taken message, a Floor Deny message, or a Floor Queue Position Info message. | When T101 expires, a new Floor Request message is sent. |
| T103  (end of RTP media) | Should be equal to T1.  Configurable as specified in 3GPP TS 24.483 [4]. | Reception of a Floor Taken message or an RTP media packet.  T103 is reset and started again every time an RTP media packet is received. | The reception of a Floor Idle message. | When T103 expires the floor control client concludes that the RTP media, which it was started for, has completed. |
| T104 (Floor Queue Position Request) | Configurable as specified in 3GPP TS 24.483 [4].  T104 shall only permit a certain number of retransmissions of the Floor Queue Position Request message. | When the floor participant sends a Floor Queue Position Request message. | Reception of a Floor Queue Position Info message.  Leaving the ‘U: queued’ state. | If the counter is less than the upper limit of C104, a new Floor Queue Position Request message is sent and counter is incremented by 1.  When the limit in C104 is reached, the floor participant stops sending the Floor Queue Position Request message. |
| T132 (Queued granted user action) | Default value:  2 seconds.  Configurable as specified in 3GPP TS 24.483 [4]. | When the floor participant receives a Floor Granted message for a queued request. | When a floor participant in ‘U: queued’ state pushes PTT button. | The floor participant sends a Floor Release message and may indicate to the user that the floor is no more available |
| T134 (Floor Queued Cancel Request) | Default value:  2 seconds.  Shall be implementation specific and based on local policies | When the floor participant sends the Floor Queued Cancel Request message. | On receiving the response to the Floor Queued Cancel Request message. | Shall indicate to the user and action can be implementation specific. |
| NOTE 1: The total time during which the floor participant retransmits the Floor Release messages shall be less than 6 seconds.  NOTE 2: The total time during which the floor participant retransmits Floor Request messages should be less than 6 seconds. | | | | |

\* \* \* \* \* \* END CHANGES \* \* \* \* \* \* \*