**3GPP TSG-CT WG1 Meeting #127bis-eC1-210298**

**Electronic meeting, 25-29 January 2021 *was* C1-210291**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.380** | **CR** | **0295** | **rev** | **4** | **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 | **X** |

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| ***Title:*** | Authorized user being notified about other users floor queue status | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | enh3MCPTT-CT | | | | |  | ***Date:*** | | | 01-11-2020 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | In recent SA6 meeting, the CR S6-202006 is agreed and which captures an authorized user being notified about other users floor queue status and was added to fulfil the exsiting functionality of cancelling queued floor request as a supporting/dependent funcationality. | | | | | | | | |
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| ***Summary of change:*** | | The floor queue info message is sent to an authorized user to indicate the another user floor request is queued or removed from the queue.  Updated the floor queue position info message to support Queued User ID and SSRC of queued floor participant in on-network. | | | | | | | | |
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| ***Consequences if not approved:*** | | Authorized user will not be able to determine the list of users whose floor request is queued and no way user can execute the procedure to remove the queued floor request of the users | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.4.1, 6.2.4.7.X (New), 6.3.4.4.7, 6.3.4.4.7a, 6.3.4.4.12, 6.3.5.4.4, 6.3.5.4.5, 6.3.5.10.5, 6.3.5.10.7,8.2.12 and A.3.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev 4: In 6.2.4.7.x, the step 4 is modified to keep the text simple as “shall remain in the current state”.  Rev 3: The subclause 6.2.4.7.4 numbering updated to 6.2.4.7.X, In subclause 6.2.4.7.4 step 3 a), inserted "the" before "MCPTT user", In subclause 6.3.4.4.7, updated the text to provide the clarity on whose queue position info is sent and modified "the authorized…" "an authorized" (also to the 6.3.4.4.7a, 6.3.4.4.12 and 6.3.5.4.4), in annexue A.3.4: corrected optionalyoptionally  Rev 2: Document version updated. 17.0.0 to 17.1.0  Rev 1:  6.2.4.7.4: Reworded some of the texts  8.2.12: Reworded for SSRC and Queued user ID field description. | | | | | | | | |

\* \* \* \* \* \* 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 \* \* \* \* \* \*

##### 6.2.4.7.X 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. if the message indicates that a floor request has been queued and the queued floor request is of another user, the floor participant:

a. may provide the queued user ID, SSRC, queue position and priority (if available) to the MCPTT user and cache the information;

3. if the message indicates that the floor request of another user is no longer queued, the floor participant:

a. may clear the cached information of the previously queued user, SSRC, queue position and priority (if available) and may provide an indication to the MCPTT user; and

4. shall remain in the current state.

NOTE: The floor request is no longer queued can be due to the previously queued floor request being rejected after dequeuing or removing from the floor control queue by the floor participant whose floor request is queued

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

##### 6.3.4.4.7 Receive Floor Request message with pre-emptive priority (R: pre-emptive Floor Request)

NOTE 1: This procedure is also invoked from the subclause 6.3.5.4.4.

If the group is not configured to support multi-talker feature control, on receipt of a floor request message with effective priority indicating pre-emptive priority, and if the effective priority of the floor participant with permission to send media is not the pre-emptive priority, or if the group is configured for audio cut-in, the floor control arbitration logic in the floor control server:

1. based on local policy, select one of the following options:

a. revoke the current speaker; or

b. allow media from both the current speaker and from the participant now requesting floor with a pre-emptive floor priority;

NOTE 2: If the group is configured for audio cut-in, media is allowed only for the participant now requesting the floor.

2. if revoking current speaker is selected:

a. shall stop timer T1 (End of RTP media), if running;

b. shall stop timer T20 (Floor Granted), if running;

c. shall include a Reject Cause field with the <Reject Cause> value set to #4 (Media Burst pre-empted) in the Floor Revoke message sent in subclause 6.3.4.5.2;

d. shall enter the 'G: pending Floor Revoke' state as specified in the subclause 6.3.4.5.2;

e. shall insert the floor participant into the active floor request queue to the position in front of all queued requests, if not inserted yet or update the position of the floor participant in the active floor request queue to the position in front of all other queued requests, if already inserted;

f. shall send a Floor Queue Position Info message to the requesting floor participant, if negotiated support of queueing of floor requests as specified in clause 14. The Floor Queue Position Info message:

i. include the queue position and floor priority in the Queue Info field; and

ii. if the Floor Request message included a Track Info field, shall include the received Track Info field; and

g. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the received floor request message is queued as described in step e). The Floor Queue Position Info message:

i. shall include the queue position and floor priority in the Queue Info field;

ii. shall include the SSRC of the queued user in SSRC of queued floor participant field;

iii. shall include the queued user information in Queued User ID field; and

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

3. if allow media from both the current speaker and from the participant now requesting floor with a pre-emptive priority is selected:

a. shall perform the actions specified in the subclause 6.3.6.2.2.

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

##### 6.3.4.4.7a Receive Floor Request message multi-talker (R: multi-talker Floor Request)

On receipt of a floor request message and if the group is configured as multi-talker group the floor control arbitration logic in the floor control server:

1. shall select one of the following options:

a. if the maximum number of simultaneous talkers applicable for multi-talker control is reached and if the floor request message has effective priority indicating pre-emptive priority, determine from all participants having permission to send media, the one with the lowest priority and revoke the floor from the participant with the lowest priority; or

b. if the maximum number of simultaneous talkers applicable for multi-talker control is not reached, allow media from both the current speaker(s) and from the participant now requesting floor;

2. if revoking is selected:

a. shall stop timer T1 (End of RTP media) for the participant from which the floor is revoked, if running;

b. shall stop timer T20 (Floor Granted) for the participant from which the floor is revoked, if running;

c. shall include a Reject Cause field with the <Reject Cause> value set to #4 (Media Burst pre-empted) in the Floor Revoke message sent in subclause 6.3.4.5.2;

d. shall enter the 'G: pending Floor Revoke' state as specified in the subclause 6.3.4.5.2;

e. shall insert the floor participant into the active floor request queue to the position in front of all queued requests, if not inserted yet or update the position of the floor participant in the active floor request queue to the position in front of all other queued requests, if already inserted;

f. shall send a Floor Queue Position Info message to the requesting floor participant, if negotiated support of queueing of floor requests as specified in clause 14. The Floor Queue Position Info message:

i. shall include the queue position and floor priority in the Queue Info field; and

ii. if the Floor Request message included a Track Info field, shall include the received Track Info field; and

g. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the received floor request message is queued as described in step e). The Floor Queue Position Info message:

i. shall include the queue position and floor priority in the Queue Info field;

ii. shall include the SSRC of the queued user in SSRC of queued floor participant field;

iii. shall include the queued user information in Queued User ID field; and

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

3. if allow media from both the current speaker(s) and from the participant now requesting floor is selected:

a. shall send a Floor Granted message to the requesting floor participant. The Floor Granted message:

i. shall include the value of the T2 (Stop talking) timer in the Duration field;

ii. shall include the granted priority in the Floor priority field;

iii. if a Track Info field associated with the floor control server state transition diagram for 'multe-talker floor control operation' is stored, shall include the stored Track Info field;

iv. shall include the Floor Indicator field with the I-bit set to '1' (Multi-talker); and

v. shall include the SSRC of granted floor participant;

b. shall add the MCPTT ID of the user to which the floor is granted to the list of currently granted talkers;

c. shall send a Floor Taken message to any non-controlling MCPTT functions involved and to floor participants controlled by the controlling MCPTT function that will listen to the RTP media from the multi-talker MCPTT client according to local policy. The Floor Taken message:

i. shall include the granted MCPTT user's MCPTT ID in the Granted Party's Identity field and may include the associated functional alias in the Functional Alias field, if privacy is not requested;

ii. shall include a Message Sequence Number field with a <Message Sequence Number> value increased with 1;

iii. shall include the Floor Indicator field with the I-bit set to '1' (Multi-talker);

iv. shall include the list of granted users in the multi-talker group in List of Granted Users field;

v. shall include the list of SSRCs of granted floor participants; and

vi) may include the list of functional aliases of the granted floor participants in the List of Functional Aliases field;

d. shall start the T1 (End of RTP media) timer for the particpant to which the floor is granted;

e. shall start timer T20 (Floor Granted) for the particpant to which the floor is granted, if the floor request was queued and initialise the counter C20 (Floor Granted) to 1; and

f. shall stay in the state to 'G: Floor Taken' state.

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

##### 6.3.4.4.12 Receive an implicit floor request (R: Implicit floor request)

Upon receiving an implicit floor request due to an upgrade to an emergency group call or due to an upgrade to imminent peril call, the floor control arbitration logic in the floor control server:

1. shall stop timer T1 (End of RTP media), if running;

2. shall stop timer T20 (Floor Granted), if running;

3. shall set the Reject Cause field in the Floor Revoke message to #4 (Media Burst pre-empted);

4. shall enter the 'G: pending Floor Revoke' state as specified in the subclause 6.3.4.5.2;

5. shall insert the floor participant into the active floor request queue to the position in front of all queued requests, if not inserted yet or update the position of the floor participant in the active floor request queue to the position in front of all other queued requests, if already inserted;

6. shall send a Floor Queue Position Info message to the requesting floor participant, if negotiated support of queueing floor requests as specified in clause 14. The Floor Queue Position Request message:

a. shall include the queue position and floor priority in the Queue Info field; and

b. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

7. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the received implicit floor request message is queued as described in the step 5). The Floor Queue Position Info message:

a. shall include the queue position and floor priority in the Queue Info field;

b. shall include the SSRC of the queued user in SSRC of queued floor participant field;

c. shall include the queued user information in Queued User ID field; and

d. may set the first bit in the subtype of the Floor Queue Position message to '1' (Acknowledgment is required) as described in subclause 8.2.2.

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

##### 6.3.5.4.4 Receive Floor Request message (R: Floor Request)

Upon receiving a Floor Request message from the associated floor participant, if the group is configured for audio cut-in floor control, the floor control interface towards the MCPTT client in the floor control server:

1. shall forward the Floor Request message to the floor control server arbitration logic; and

2. shall remain in the 'U: not permitted and Floor Taken' state.

Upon receiving a Floor Request message from the associated floor participant, if the group is configured for multi-talker floor control, if the number of granted floor participants is below the configured maximum; and the MCPTT ID of the associated floor participants is in the list of allowed configured multi-talkers, the floor control interface towards the MCPTT client in the floor control server:

1. shall forward the Floor Request message to the floor control server arbitration logic; and

2. shall remain in the 'U: not permitted and Floor Taken' state.

If the group is not configured for multi-talker floor control, upon receiving a Floor Request message, without a Floor Indicator field or with the Floor Indicator field included where the D-bit (Emergency call) and the E-bit (Imminent peril call) are set to '0', from the associated floor participant, and if the MCPTT client did not negotiate queueing of floor requests or did not include a priority in the "mc\_priority" fmtp attribute as specified in clause 14, the floor control interface towards the MCPTT client in the floor control server:

1. shall send a Floor Deny message to the associated floor participant. The Floor Deny message:

a. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);

b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value;

c. if the Floor Request included a Track Info field, shall include the received Track Info field; and

d. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

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

NOTE 1: 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.

3. shall remain in the 'U: not permitted and Floor Taken' state.

Upon receiving a Floor Request message from the associated floor participant and the session is a broadcast group call or an ambient listening call, the floor control interface towards the MCPTT client in the floor control server:

1. shall send a Floor Deny message to the associated floor participant. The Floor Deny message:

a. shall include in the Reject Cause field the <Reject Cause> value cause #5 (Receive only);

b. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value; and

c. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

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

NOTE 2: 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.

3. shall remain in the 'U: not permitted and Floor Taken' state.

Upon receiving a Floor Request message from the associated floor participant and if the MCPTT client negotiated support of queueing of floor requests or included a floor priority in the "mc\_priority" or both as described in specified in clause 14 and according to local policy, the floor control interface towards the MCPTT client in the floor control server:

NOTE 3: In case the group is configured for multi-talker floor control, then the following steps are only carried out in case the maximum number of allowed talkers is reached.

1. shall determine the effective priority level as described in subclause 4.1.1.4 by using the following parameters:

a. the floor priority shall be:

i. the lower of the floor priority included in Floor Request message and the negotiated maximum floor priority that the MCPTT client is permitted to request, if the MCPTT client negotiated floor priority "mc\_priority" and floor priority is included in the Floor Request message;

ii. the receive only floor priority, if the MCPTT client negotiated floor priority in the "mc\_priority" fmtp attribute and if the negotiated maximum floor priority that the MCPTT client is permitted to request is "receive only";

iii. the default priority, if the MCPTT client negotiated floor priority in the "mc\_priority" fmtp attribute, if the negotiated maximum floor priority that the MCPTT client is permitted to request is not receive only and if the floor priority is not included in the Floor Request message; and

iv. the default priority, if the MCPTT client did not negotiate floor priority in the "mc\_priority" fmtp attribute; and

b. the type of the call shall be

i. if the Floor Indicator field is included in the message and the D-bit (Emergency call bit) is set to '1', determined to be an emergency call;

ii. if the Floor Indicator field is included in the message and the E-bit (Imminent peril call) is set to '1', determined to be an imminent peril call; and

iii. if the Floor Indicator field is not included in the message or the Floor Indicator field is included and neither the D-bit (Emergency call bit) nor the E-bit (Imminent peril call) is set to '1', determined to be a normal call;

2. if the effective priority is "receive only", the floor control interface towards the MCPTT client in the floor control server:

a. shall send a Floor Deny message to the floor participant. The Floor Deny message:

i. shall include in the Reject Cause field the <Reject Cause> value cause #5 (Receive only) ;

ii. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value;

iii. if the Floor Request included a Track Info field, shall include the received Track Info field; and

iv. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

b. shall remain in the 'U: not permitted and Floor Taken' state;

3. if

a. a Track Info field is included in the Floor Request message, shall use the topmost <Participant Reference> value and the SSRC in the received Floor Request message to check if the floor participant has a queued floor request; or

b. a Track Info field is not included in the Floor Request message, shall use the SSRC in the received Floor Request message to check if the floor participant has a queued floor request;

4. if the floor participant already has a queued floor request with the same effective priority level, the floor control interface towards the MCPTT client in the floor control server:

a. shall send a Floor Queue Position Info message to the requesting MCPTT client, if the MCPTT client negotiated support of queueing of floor requests as specified in clause 14. The Floor Queue Position Info message:

i. shall include the queue position and floor priority in the Queue Info field;

ii. if the Floor Request included a Track Info field, shall include the received Track Info field; and

iii. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

b. shall remain in the 'U: not permitted and Floor Taken' state

5. if the effective priority level is pre-emptive and there are no other pre-emptive requests in the active floor request queue and the effective priority level of the current MCPTT client with permission to send a media is not the pre-emptive priority, the floor control interface towards the MCPTT client in the floor control server:

a. shall forward the Floor Request message to the floor control server arbitration logic indicating that a Floor Request message with pre-emptive priority is received; and

b. shall remain in the 'U: not permitted and Floor Taken' state

NOTE 4: The Floor control server arbitration logic initiates revoking the permission to send media towards the current MCPTT client with the permission to send media as specified in the subclause 6.3.4.4.7;

6. if the MCPTT client did not negotiate support of queueing of floor requests as specified in clause 14, the effective priority level is pre-emptive and either other pre-emptive request is queued or the effective priority level of the current MCPTT client with permission to send a media is the pre-emptive priority, the floor control interface towards the MCPTT client in the floor control server:

a. shall send a Floor Deny message to the associated floor participant. The Floor Deny message:

i. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);

ii. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value;

iii. if the Floor Request included a Track Info field, shall include the received Track Info field; and

iv. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

b. shall remain in the 'U: not permitted and Floor Taken' state;

7. if the MCPTT client did not negotiate "queueing" and the effective priority level is not pre-emptive, the floor control interface towards the MCPTT client in the floor control server:

a. shall send a Floor Deny message to the associated floor participant. The Floor Deny message:

i. shall include in the Reject Cause field the <Reject Cause> value cause #1 (Another MCPTT client has permission);

ii. may include in the Reject Cause field an additional text string explaining the reason for rejecting the floor request in the <Reject Phrase> value;

iii. if the Floor Request included a Track Info field, shall include the received Track Info field; and

iv. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

b. shall remain in the 'U: not permitted and Floor Taken' state; and

8. if the MCPTT client negotiated support of queueing of floor requests as specified in clause 14 and the effective priority level is not pre-emptive, the floor control interface towards the MCPTT client in the floor control server:

a. shall insert the MCPTT client into the active floor request queue, if not inserted yet, or update the position of the MCPTT client in the active floor request queue, if already inserted, to the position immediately following all queued requests at the same effective priority level;

b. the floor control server shall send a Floor Queue Position Info message to the floor participant. The Floor Queue Position Info message:

i. shall include the queue position and floor priority in the Queue Info field;

ii. if the Floor Request included a Track Info field, shall include the received Track Info field; and

iii. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

c. shall remain in the 'U: not permitted and Floor Taken' state;

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

NOTE 5: 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.

e. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the received floor request message is queued as described in step e). The Floor Queue Position Info message:

i. include the queue position and floor priority in the Queue Info field;

ii. shall include the SSRC of the queued user in SSRC of queued floor participant field;

iii. include the queued user information in Queued User ID field; and

iv. may set the first bit in the subtype of the Floor Queue Position message to '1' (Acknowledgment is required) as described in subclause 8.2.2.

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

##### 6.3.5.4.5 Receive Floor Release message (R: Floor Release)

Upon receiving a Floor Release message from the associated floor participant and if the MCPTT client did not negotiate support of queueing of floor requests or included a floor priority in the "mc\_priority" fmtp attribute as specified in clause 14, the floor control interface towards the MCPTT client in the floor control server:

1. if the first bit in the subtype of the Floor Release 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 '4' (Floor Release); and

b. shall include the Source field set to '2' (the controlling MCPTT function is the source);

2. shall send a Floor Taken message to the associated floor participant. The Floor Taken message:

a. shall include the granted MCPTT user's MCPTT ID in the Granted Party's Identity field and may include the functional alias of the granted MCPTT user in the Functional Alias field, if privacy is not requested;

b. shall include a Message Sequence Number field with a <Message Sequence Number> value increased with 1;

c. shall include the Permission to Request the floor field set to '0', if the floor participants are not allowed to request the floor;

d. if the Floor Release message included a Track Info field, shall include the received Track Info field;

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

NOTE 1: 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.

f. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications; and

3. shall remain in the 'U: not permitted and Floor Taken' state.

Upon receiving a Floor Release message from the associated floor participant and if the MCPTT client negotiated support of queueing of floor requests as specified in clause 14, the floor control interface towards the MCPTT client in the floor control server:

1. if the first bit in the subtype of the Floor Release 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 '4' (Floor Release); and

b. shall include the Source field set to '2' (the controlling MCPTT function is the source);

2. if

a. a Track Info field is included in the Floor Release message, shall use the topmost <Participant Reference> value and the SSRC in the received Floor Release message to check if the floor participant has a queued floor request; or

b. if a Track Info field is not included in the Floor Release message, shall use the SSRC in the received Floor Release message to check if the floor participant has a queued floor request;

3. shall remove the MCPTT client from the active floor request queue, if the MCPTT client was in the active floor request queue;

3a. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the queued request is removed from the active floor request queue as described in step 3). The Floor Queue Position Info message:

a. shall include the queue position value set as '254' and floor priority in the Queue Info field;

b. shall include the SSRC of the queued user in SSRC of queued floor participant field;

c. shall include the queued user information in Queued User ID field; and

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

4. shall send a Floor Taken message to the associated floor participant. The Floor Taken message:

a. shall include the granted MCPTT user's MCPTT ID in the Granted Party's Identity field and may include the functional alias of the granted MCPTT user in the Functional Alias field, if privacy is not requested;

b. if the session is a broadcast group call, shall include the Permission to Request the floor field set to '0';

c. if the session is not a broadcast group call, may include the Permission to Request the floor field set to '1';

d. if a Track Info field is included in the Floor Release message, shall include the received Track Info field;

e. shall include a Message Sequence Number field with a <Message Sequence Number> value increased with 1; and

f. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

5. may set 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; and

NOTE 2: 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.

6. shall remain in the 'U: not permitted and Floor Taken' state.

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

##### 6.3.5.10.5 Receive Floor Request message (R: Floor Request)

Upon receipt of a Floor Request message, the floor control interface towards the MCPTT client:

1. shall determine the effective priority level as described in subclause 4.1.1.4;

2. shall put the Floor Request message in the floor request queue according to the determined effective priority level;

3. if the <Queueing Capability> value in the Track Info field is set to '1' (the floor participant in the MCPTT client supports queueing), shall send a Floor Queue Position Info message to the requesting non-Controlling MCPTT function, The Floor Queue Position Info message:

a. shall include the queue position and floor priority in the Queue Info field;

b. shall include the received Track Info field; and

c. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

4 if the <Queueing Capability> value in the Track Info field is set to '0' (the floor participant in the MCPTT client does not support queueing), shall send the Floor Deny message. The floor Deny message:

NOTE: A Floor Request from a MCPTT client in a constituent group can be received without the queueuing capability if a floor participant in an ongoing constituent MCPTT group request floor while the floor was idle during the merging process.

a. shall include in the Reject Cause field the <Reject Cause> value cause '1' (Another MCPTT client has permission);

b. shall include the received Track Info field; and

c. if a group call is a broadcast group call, a system call, an emergency call, an imminent peril call, or a temporary group session, shall include the Floor Indicator field with appropriate indications;

4a. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the received floor request message is queued as described in step 2). The Floor Queue Position Info message:

a. shall include the queue position and floor priority in the Queue Info field;

b. shall include the SSRC of the queued user in SSRC of queued floor participant field;

c. include the queued user information in Queued User ID field; and

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

5. shall remain in the 'U: not permitted and initiating' state.

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

##### 6.3.5.10.7 Receive a Floor Release message (S: Floor Release)

Upon receiving a Floor Release message from the associated floor participant, the floor control interface towards the MCPTT client:

1. if the first bit in the subtype of the Floor Release 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 '4' (Floor Release); and

b. shall include the Source field set to '2' (the controlling MCPTT function is the source);

2. shall use the topmost <Participant Reference> value and the SSRC in the Track Info field of the received Floor Release message to check if the floor participant has a queued floor request and if not, check if there is a floor request in one of the cached application/vnd.3gpp.mcptt-floor-request+xml MIME bodies;

3. shall remove the MCPTT client from the active floor request queue or the cached application/vnd.3gpp.mcptt-floor-request+xml MIME body, if the MCPTT client was in the active floor request queue or in the application/vnd.3gpp.mcptt-floor-request+xml MIME body;

3a. may send a Floor Queue Position Info message of the requesting floor participant to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) if the queued request is removed from the active floor request queue as described in step 3). The Floor Queue Position Info message:

a. shall include the queue position value set as '254' and floor priority in the Queue Info field;

b. shall include the SSRC of the queued user in SSRC of queued floor participant field;

c. shall include the queued user information in Queued User ID field; and

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

4. shall remain in the 'U: not permitted and initiating' state.

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

### 8.2.12 Floor Queue Position Info message

The Floor Queue Position Info message is sent by the floor control server to notify the floor participant of its position in the floor request queue.

The Floor Queue Position Info message is used in off-network and in on-network mode. In the on-network mode the Floor Queue Position Info message is only used over the unicast bearer.

Table 8.2.12-1 shows the content of the Floor Queue Position Info message.

Table 8.2.12-1: Floor Queue Position Info message

0 1 2 3

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

|V=2|P| Subtype | PT=APP=204 | length |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| SSRC of floor control server/floor arbitrator |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| name=MCPT |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| User ID field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| SSRC of queued floor participant field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| Queued User ID field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| Queue Info field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| Track Info field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

| Floor Indicator field |

+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

With the exception of the three first 32-bit words the order of the fields are irrelevant.

**Subtype:**

The subtype is coded according to table 8.2.2-1.

**Length:**

The length is coded as specified in subclause 8.1.2.

**SSRC:**

The SSRC field carries the SSRC of the floor control server for on-network and floor arbitrator for off-network.

The SSRC field is coded as specified in IETF RFC 3550 [3].

**User ID:**

The User ID field is used in off-network only. The User ID field carries the MCPTT ID of the floor participant sending the Floor Queue Position Info message.

The User ID value is coded as specified in subclause 8.2.3.8.

**SSRC of queued floor participant:**

The SSRC of queued floor participant is used in off-network operation.

The SSRC of queued floor participant is used in on-network operation only for sending user queue information to an authorized floor participant.

The SSRC of queued floor participant carries the SSRC of the queued floor participant.

The SSRC field shall be coded as specified in subclause 8.2.3.16.

**Queued User ID:**

The Queued User ID field is used in off-network operation.

The Queued User ID of the queued floor participant is used in on-network operation only for sending user queue information to an authorized floor participant.

The Queued User ID field carries the MCPTT ID of the queued floor participant.

The Queued User ID value is coded as specified in subclause 8.2.3.8.

**Queue Info:**

The Queue Info field defines the queue position and granted floor priority in the queue.

The Queue Info field is coded as specified in subclause 8.2.3.5.

**Track Info:**

The Track Info field is included when an MCPTT call involves a non-controlling MCPTT function. The coding of the Track Info field is described in subclause 8.2.3.13.

**Floor Indicator:**

The Floor Indicator field is coded as described in subclause 8.2.3.15.

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

## A.3.4 Floor request when floor is taken and queueing is applied

Figure A.3.4-1 illustrates a case when a user request floor when the floor is taken and queueing is applied in the MCPTT call.



Figure A.3.4-1: Floor request when floor is taken and queueing applied

The users at MCPTT client B wants to speak and presses the push-to-talk when the floor is already taken by the MCPTT client A.

The steps of the flow is as follows:

1. The floor participant in the MCPTT client B sends the Floor Request message towards the floor control server.

2. When the floor control interface towards the MCPTT client B receives a Floor Request message in the 'U: not permitted and Taken' state and if:

a. the floor request does not include higher priority than the user already permitted to talk requested; and

b. when queueing of floor requests are negotiated as specified in clause 14;

then the floor control interface towards the MCPTT client B queues the Floor Request message and sends a Floor Queue Position Info message towards the floor participant in the MCPTT client B and optionally sends a Floor Queue Position Info message to an authorized floor participant (e.g based on local policy if the authorized floor participant is a Dispatcher or Supervisor etc) which is not shown in the figure.

When the floor participant in MCPTT client B receives the Floor Queue Position Info message the floor participant provides a queueing indications to the user and enter the 'U: queued' state.

3. When the user at MCPTT client A stops talking and releases the push-to-talk button the floor participant in the MCPTT client A sends a Floor Release message to the floor control server and enter the 'U: pending Release' state.

4. When the floor control interface towards the MCPTT client A receives the Floor Release message the Floor Release message is forwarded to the floor control arbitration logic.

5. When the floor control arbitration logic receives the Floor Release message the last RTP media packets are allowed to be forwarded. When the last RTP media packets are distributed the floor control arbitration logic checks the floor request queue. In this example there is one floor request in the queue and a Floor Grant message is sent towards the floor participant in the MCPTT client B.

6. The floor control interface towards MCPTT client B interface forwards the message to the floor participant in MCPTT client B and changes the state to 'U: permitted'.

7. The floor control arbitration logic sends a Floor Taken message to all other participants in the MCPTT call via the other floor control interfaces towards MCPTT clients.

When the Floor Taken message is received by the other floor control interface towards MCPTT clients Floor Taken message is forwarded to the floor participants in the associated MCPTT client. The floor participant in the MCPTT client A changes the state to the 'U: not permitted and Taken' state.

8. On receipt of the Floor Grant message the floor participant in MCPTT client B provides a grant notification to the MCPTT user, changes the state to 'U: has permission' and the MCPTT client A starts to forward RTP media packets towards the MCPTT server.

9. The media distributor distributes the RTP media packets to all other MCPTT clients in the MCPTT call.

\* \* \* \* \* \* END CHANGE \* \* \* \* \* \*