**3GPP TSG-CT WG1 Meeting #134-eC1-221839**

**E-Meeting, 17th – 25th February 2022 *was* C1-221463**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.581** | **CR** | **0087** | **rev** | **1** | **Current version:** | **15.7.0** |  |
|  | | | | | | | | |
| *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:*** | Auto-Receive Reception Mode | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMCVideo-CT | | | | |  | ***Date:*** | | | 2022-02-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The existing procedures related to automatic and manual reception mode in subclause 6.3.6.3.3 and 6.3.6.4.10 are incomplete  Complete procedure to handle auto reception mode which is required for broadcast group call, system call, emergency call, and imminent peril call is missing in client and server state machines. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The existing procedures in subclause 6.2.5.3.2 modified to handle auto reception mode in client side  The existing procedures in subclause 6.3.6.3.3, 6.3.6.4.10, 6.3.7.3.3, 9.3.7.4.5 are modified to handle auto and manual reception mode at transmission control server (for reception control).  In subclauses 9.2.3.21 Reception Mode field is newly introduced and in subclause 9.2.13 Reception Mode field is added to media transmission notification message. | | | | | | | | |
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| ***Consequences if not approved:*** | | In case of emergency communications, the terminating users should start receiving the media (audio or video) immediately without expecting the terminating user to send the request to receive the transmitting media. This results in initial media (audio/video) data clipping and user could miss the initial important communication. In current specification server is sending the automatic reception mode indication but the client is not handling the indication and not performing actions appropriately. Without this procedure change/inclusion automatic reception functionality doesn’t work properly. | | | | | | | | |
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| ***Clauses affected:*** | | 6.2.5.3.2, 6.3.6.1, 6.3.6.3.3, 6.3.6.4.10, 6.3.7.1, 6.3.7.3.3, 9.3.7.4.5, 9.2.3.21 (NEW) and 9.2.13 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev1:   1. In 6.2.5.3.2, 6.3.7.3.3, 9.3.7.4.5, 9.2.3.21: Added editorial corrections 2. In 6.3.6.3.3 and 6.3.6.4.10, reworded the proposed texts and corrected some of the editorials | | | | | | | | |

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

##### 6.2.5.3.2 Receive Media transmission notification message (R: Media Transmission Notification)

Upon receiving the media transmission notification from the transmission control server, the transmission participant:

1. if the first bit in the subtype of the media transmission notification message is set to '1' (Acknowledgment is required) as described in subclause 9.2.2.1, shall send a Transmission control Ack message. The Transmission control Ack message:

a. shall include the Message Type field set to '6' (Media transmission notification); and

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

2. shall provide media transmission notification to the user;

3. shall store the User ID and the SSRC of the user transmitting the media;

4. if the Reception Mode field is set to '0' indicating automatic reception mode:

a. shall create an instance of the 'Transmission participant state transition diagram for basic reception control operation';

b. shall map the stored User ID and the SSRC of the user transmitting the media with the instance of 'Transmission participant state transition diagram for basic reception control operation' created in step a); and

c. shall enter the 'U: has permission to receive' state;

5. may display the details of the incoming media to the user; and

6. shall remain in the 'U: reception controller' state.

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

#### 6.3.6.1 General

The reception control arbitration logic in the transmission control server shall behave according to the state diagram and state transitions specified in this subclause.

Figure 6.3.6.1-1 shows the general reception operation states (Gr states) and the state transition diagram.



Figure 6.3.6.1-1: Transmission control server state transition diagram for 'general reception control operation'

The reception control arbitration logic in the transmission control server shall keep one instance of the 'general transmission control operation' state machine per MCVideo call.

If transmission control messages or RTP media packets arrives in a state where there is no procedure specified in the following subclauses the transmission control arbitration logic in the transmission control server:

1. shall discard the transmission control message;

2. shall request the media distributor in the MCVideo server to discard any received RTP media packet; and

3. shall remain in the current state.

State details are explained in the following subclauses.

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

##### 6.3.6.3.3 Receive Media Transmission Notify message (R: Media Transmission Notify)

Upon receiving a media transmission request notify, the reception control arbitration logic in the transmission control server:

1. shall send the Media Transmission Notify message to all other transmission participants. The Media Transmission Notify message:

a. if a group call is a broadcast group call, system call, emergency call, an imminent peril call, shall include the Reception Mode field is set to '0' indicating automatic reception mode:

i. shall set the counter C11 (Count of Active Receivers for the stream), associate with the transmitter by the total number of receiving MCVideo clients who are participating in the call;

ii. shall store the SSRC of all the transmission participants who are participating in the call until the reception of media associated with Transmission notification is ended;

iii. shall set the C7 (Reception Accepted) value with a total number of active receivers of each stream and an associated stream of the recieved media transmission notification (i.e. Sum of all C11 counter values); and

iv. shall enter the 'Gr: Reception Accepted' state; and

b. if a group call is not a broadcast group call, system call, emergency call or an imminent peril call, shall include the Reception Mode field is set to '1' indicating manual reception mode:

i. shall start timer T11 (Stream Reception Idle) and associate it with the transmitter SSRC or UserId;

ii. shall initialize counter C11(Count of active receivers for the stream) to 0 and associate it with the transmitter SSRC or UserId; and

iii. shall remain in 'Gr: Reception Idle' state.

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

##### 6.3.6.4.10 Receive Media Transmission Notify message (R: Media Transmission Notify)

Upon receiving a media transmission request notify message from the reception control arbitration logic in the transmission control server:

1. shall send the Media Transmission Notify message to all other transmission participants. The Media Transmission Notify message:

a. if a group call is a broadcast group call, system call, emergency call or an imminent peril call, shall include the Reception Mode field is set to '0' indicating automatic reception mode;

i. shall set the counter C11 (Count of Active Receivers for the stream), associated with the transmitter by the total number of receiving MCVideo clients who are participating in the call;

ii shall store the SSRC of all the transmission participants who are participating in the call until the reception of media associated with Transmission notification is ended; and

iii shall set C7 (Reception Accepted) value with a total number of active receivers of each stream and an associated stream of the recieved media transmission notification (i.e. Sum of all C11 counter values); and

b. if a group call is not a broadcast group call, system call, emergency call or an imminent peril call, shall include the Reception Mode field is set to '1' indicating manual reception mode:

i. shall start timer T11 (Stream Reception Idle) and associate it with the transmitter SSRC or UserId present in Media Transmission Notify message; and

ii shall initialize a counter C11(Count of Active Receivers for the stream) to 0 and associate it with the transmitter SSRC or UserId present in Media Transmission Notify message; and

2. shall remain in the 'Gr: Reception Accepted' state.

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

#### 6.3.7.1 General

The reception control interface towards the MCVideo client in the transmission control server shall behave according to the state diagram and state transitions specified in this subclause.

Figure 6.3.7.1-1 shows the states and state transitions for an associated transmission participant in the transmission control server.



Figure 6.3.7.1-1: Transmission control server state transition diagram for basic reception control operation towards the transmission participant

The reception control interface towards the MCVideo client in the transmission control server shall create one instance of the 'basic reception control operations' state machine towards the MCVideo client for every transmission participant served by the transmission control server as follows:

1. For pre-arranged group call in case of an originating MCVideo call, the 'basic reception control operation towards the transmission participant' state machine shall be created when the MCVideo server sends the SIP 200 (OK) response towards the originating MCVideo client.

2. For pre-arranged group call in case of a terminating MCVideo call, the 'basic reception control operation towards the transmission participant' state machine shall be created when the transmission control server receives the SIP 200 (OK) response.

3. For chat group call the 'basic reception control operation state machine towards the transmission participant' shall be created when the MCVideo server sends the SIP 200 (OK) response to the received initial SIP INVITE request.

The transmission participant associated to the 'basic reception control operation towards the transmission participant' state machine is here referred to as the "associated transmission participant".

The external inputs to the state machine are:

1. directives coming from the reception control arbitration logic;

2. transmission control messages sent by the transmission participants;

3. media; and

4. in certain cases, SIP messages used for call handling.

If transmission control messages or RTP media packets arrives in a state where there is no procedure specified in the following subclauses, the transmission control interface towards the MCVideo client in the transmission control server:

1. shall discard the transmission control message;

2. shall request the network media interface in the MCVideo server to discard any received RTP media packet; and

3. shall remain in the current state.

State details are explained in the following subclauses.

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

##### 6.3.7.3.3 Send Media Transmission Notification message (S: Media Transmission Notification)

When the transmission control server has received RTP media packets from another transmission participant or upon receiving a Media Transmission Notification message from the reception control arbitration logic, the transmission control interface towards the MCVideo client in the transmission control server:

1. shall send the Media Transmission Notification message to the transmission participant;

2. shall include the User ID and the SSRC of user transmitting the media in the Media Transmission Notification message;

3. may set the first bit in the subtype of the Media Transmission Notification message to '1' (Acknowledgment is required) as described in subclause 9.2.2.1; and

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

4. if the Reception Mode field is set to '0' indicating automatic reception mode:

a. shall increase C9 (Reception Active) by ‘1’ if it has not reached its upper limit;

b. shall store the SSRC of transmission participant granted the permission to send media in Active SSRC list until the associated transmission is ended towards the participant; and

c. shall enter the state 'U: permitted to receive' as specified in subclause 6.3.7.4.2; and

5. if the Reception Mode field is set to ‘1’ indicating manual reception mode:

a. shall remain in the 'U: not permitted to receive' state as specified in the subclause 6.3.7.3.2.

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

##### 6.3.7.4.5 Send Media Transmission Notification message (S: Media Transmission Notification)

When transmission control server has received RTP media packets from another transmission participant on uplink or upon receiving a Media Transmission Notification message from the reception control arbitration logic, the transmission control interface towards the MCVideo client in the transmission control server:

1. shall send the Media Transmission Notification message to the transmission participant;

2. shall include the User ID and the SSRC of user transmitting the media in the Media Transmission Notification;

3. may set the first bit in the subtype of the Media Transmission Notification message to '1' (Acknowledgment is required) as described in subclause 9.2.2.1;

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

4. if the Reception Mode field is set to '0' indicating automatic reception mode:

a. shall increase C9 (Reception Active) by ‘1’ if it has not reached its upper limit; and

b. shall store the SSRC of transmission participant granted the permission to send media in Active SSRC list until the associated transmission is ended towards participant; and

5. shall remain in the 'U: permitted to receive' state.

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

#### 9.2.3.21 Reception Mode Field

Reception Mode indicates whether the receiving party is granted permission to automatically receive RTP media packets from another transmission participant or not.

Table 9.2.3.21-1 describes the coding of the Permission to Request the Transmission field.

Table 9.2.3.21-1: Reception Mode field coding

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

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

|Reception |Reception |Reception Mode value |

|Mode |Mode | |

|field ID value |Length value | |

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

The <Reception Mode field ID> value is a binary value and is set according to table 9.2.3.1-1.

The <Reception Mode Length> value is a binary value and has the value '2' indicating the total length in octets of the <Reception Mode> value item.

The < Reception Mode > value is binary and coded as follows:

0 The receiver is granted permission to automatically receive media.

1 The receiver is not granted permission to automatically receive media.

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

#### 9.2.3.1 Introduction

This subclause describes the transmission control specific data fields.

The transmission control messages can include transmission control specific data fields contained in the application-dependent data of the transmission control message. The transmission control specific data fields follow the syntax specified in subclause 9.1.3.

Table 9.2.3.1-1 lists the available transmission control specific data fields including the assigned field ID.

Table 9.2.3.1-1: Transmission control specific data fields

|  |  |  |  |
| --- | --- | --- | --- |
| Field name | Field ID | | Reference |
| Decimal | Binary |
| Transmission Priority | 000 | 00000000 | Subclause 9.2.3.2 |
| Duration | 001 | 00000001 | Subclause 9.2.3.3 |
| Reject Cause | 002 | 00000010 | Subclause 9.2.3.4 |
| Queue Info | 003 | 00000011 | Subclause 9.2.3.5 |
| Granted Party's Identity | 004 | 00000100 | Subclause 9.2.3.6 |
| Permission to Request the Transmission | 005 | 00000101 | Subclause 9.2.3.7 |
| User ID | 006 | 00000110 | Subclause 9.2.3.8 |
| Queue Size | 007 | 00000111 | Subclause 9.2.3.15 |
| Message Sequence-Number | 008 | 00001000 | Subclause 9.2.3.9 |
| Queued User ID | 009 | 00001001 | Subclause 9.2.3.14 |
| Source | 010 | 00001010 | Subclause 9.2.3.12 |
| Track Info | 011 | 00001011 | Subclause 8.2.3.13 |
| Message Type | 012 | 00001100 | Subclause 9.2.3.10 |
| Transmission Indicator | 013 | 00001101 | Subclause 9.2.3.11 |
| SSRC | 014 | 00001110 | Subclause 9.2.3.16 |
| Result | 015 | 00001111 | Subclause 9.2.3.17 |
| Message Name | 016 | 00010000 | Subclause 9.2.3.18 |
| Overriding ID | 017 | 00010001 | Subclause 9.2.3.8 |
| Overridden ID | 018 | 00010010 | Subclause 9.2.3.8 |
| Reception Priority | 019 | 00010011 | Subclause 9.2.3.19 |
| MCVideo Group Identity | 020 | 00010100 | Subclause 9.2.3.20 |
| Reception Mode | 022 | 00010110 | Subclause 9.2.3.21 |

The following subclauses describe the coding of each field.

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

### 9.2.13 Media transmission notification

The Media transmission notification message is sent by the transmission control server to notify the transmission control participant that a media transmission is available from another user.

The Media transmission notification message is used in off-network and in on-network mode. In the on-network mode the Media transmission notification message is used over both the unicast bearer and MBMS bearer.

Table 9.2.13-1 shows the content of the Media transmission notification message.

Table 9.2.13-1: Media transmission notification 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 transmission control server |

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

| name=MCV1 |

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

| User ID field |

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

| SSRC of transmitter |

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

| Permission to Request the Transmission field |

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

| Transmission Indicator field |

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

| Media ID field |

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

| Track Info field |

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

| Reception Mode 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 9.2.2.1-2.

**Length:**

The length is coded as specified in to subclause 9.1.2.

**SSRC:**

The SSRC field carries the SSRC of the transmission control server.

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

**User ID:**

The User ID field carries the MCVideo ID of the user transmitting the media.

The User ID value is coded as specified in subclause 9.2.3.8.

**SSRC of transmitter:**

The SSRC of transmitter field carries the SSRC of the user transmitting the media.

The SSRC of transmitter field is coded as described in subclause 9.2.3.16.

**Permission to request the transmission:**

The Permission to Request the Transmission field is coded as specified in subclause 9.2.3.7.

**Transmission Indicator:**

The Transmission Indicator field is coded as described in subclause 9.2.3.11.

**Media ID:**

The Media ID field is present only if media multiplexing is used. The Media ID field identified a media flow within a media multiplex.

The Media ID value is coded as specified in subclause 9.2.3.x.

**Track Info:**

The Track Info field is included when an MCVideo call involves a non-controlling MCVideo function. The coding of the Track Info field is described in subclause 9.2.3.13.

**Reception Mode:**

The Reception Mode field coded as specified in subclause 9.2.3.21.

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