**3GPP TSG RAN Meeting #99 *draft\_RP-22xxxx***

**Rotterdam, NL, 3 - 23rd Mar 2023**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **34.229-5** | **CR** | **0519** | **rev** | **2** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Correction to NR forking test cases 7.24a, 7.24b, 7.26 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** | R5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI15\_Test, 5GS\_NR\_LTE-UEConTest | | | | |  | ***Date:*** | | | 2023-02-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)*  *Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | LS response in C1-213557 allows PRACK or UPDATE method to signal resource reservation. R5-223463 udpated few test cases but not all. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Allow UE to perform QOS confirmation in PRACK or UPDATE in forking test cases 7.24a, 7.24b and 7.26.  2. Fixed editorials as found. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | A conformant UE may unfairly fail forking test cases. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.24a, 7.24b, 7.26 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | TTCN Impact | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | R5-23XXXX is the final version of R5-231211 with below changes:  1. Updated specific message contents tables of PRACK and 200 OK for all test cases.  2. Added steps 23A, 23B in Table 7.24b.4.2-1 and removed earlier added steps 26A, 26B.  3. Updated step numbering in Table 7.24b.4.3-2A and Table 7.24b.4.3-2B. | | | | | | | | |

<Start of modified section>

## 7.24a MTSI MO Voice Call / Forking / UE receives two preliminary responses and one early dialog termination / 5GS

7.24a.1 Test Purpose (TP)

(1)

**with** { UE being registered to IMS and configured to use preconditions and to not use GRUU and to not suppress forking }

**ensure** **that** {

**when** { UE is made to start a voice call, processes the call setup until before completion, and then receives another early dialog indication }

**then** { UE processes the second early dialog until before completion }

}

(2)

**with** { UE having proceeded two early dialogs }

**ensure** **that** {

**when** { UE receives 199 Early Dialog Terminated for the first dialog, followed by 200 OK for the second dialog }

**then** { UE sends ACK on the second dialog and maintains it }

}

7.24a.2 Conformance Requirements

The conformance requirements covered in the present test case are, unless otherwise stated, Rel-15 requirements.

[TS 24.229, clause 5.1.3.1]:

Upon receiving a 199 (Early Dialog Terminated) provisional response to an established early dialog the UE shall release resources specifically related to that early dialog.

7.24a.3 Profile Requirements (Informative)

[GSMA NG.114 V1.0, clause 2.3.7]:

It is also possible that the network or the terminating UE will need to release an early dialog using the 199 (Early Dialog Terminated) response defined in IETF RFC 6228 [85]. To support this, the originating UE must include the "199" option tag in the Supported header field in the initial INVITE request and must understand a 199 (Early Dialog Terminated) response code and act as specified in section 5.1.3.1 of 3GPP TS 24.229 [8].

7.24a.4 Test description

7.24a.4.1 Pre-test conditions

System Simulator:

- 1 NR Cell connected to 5GC, default parameters.

UE:

- UE contains either ISIM and USIM applications or only USIM application on UICC.

- UE is configured to register for IMS after switch on.

- UE is configured to use preconditions.

- UE is configured to not use GRUU.

- UE is configured to not suppress forking via the no-fork directive.

Preamble:

- UE is in state 1N-A (TS 38.508-1 [21]) and registered to IMS

7.24a.4.2 Test procedure sequence

Table 7.24a.4.2-1: Main Behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE is made to start a voice call. | - | - | - | - |
| 2-8 | Steps 2-8 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed. | - | - | - | - |
| 9-12 | UE continues call setup (dialog 1)  (steps 2-5 of Annex A.4.1a) | - | - | - | - |
| 13 | SS triggers resource reservation: Step 10 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] is performed. | - | - | - | - |
| - | EXCEPTION: In parallel to steps 14 and 15 below, step 16 occurs. | - | - | - | - |
| 14-15 | SS triggers resource reservation: Steps 11-12 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed. | - | - | - | - |
| 16-20 | UE continues call setup (dialog 1)  (steps 6-10 of A.4.1a) | - | - | - | - |
| 21 | SS sends 183 Session Progress with a different to-tag  (dialog 2)  (step 3 of Annex A.4.1a) | <-- | 183 Session Progress | - | - |
| 22 | Check: Does the UE send PRACK message? (dialog 2)  (step 4 of Annex A.4.1a) | --> | PRACK | 1 | P |
| 23 | SS responds to PRACK (step 5 of Annex A.4.1a) | <-- | 200 OK | - | - |
| - | EXCEPTION: Steps 23A-23B describe behaviour that takes place if the UE doesn't include QOS confirmation in the PRACK message in step 22. | - | - | - | - |
| 23A | Check: Does the UE initiate a second SDP offer in an UPDATE request? (dialog 2)  (Step 6 of Annex A.4.1a) | --> | UPDATE | 1 | P |
| 23B | SS responds to UPDATE including an SDP answer. (dialog 2)  (Step 7 of Annex A.4.1a) | <-- | 200 OK | - | - |
| 24 | SS sends 180 Ringing reliably (step 8 of A.4.1a) | <-- | 180 Ringing | - | - |
| 25 | UE acknowledges reception of 180 Ringing (step 9 of A.4.1a) | --> | PRACK | - | - |
| 26 | SS responds to PRACK | <-- | 200 OK | - | - |
| 27 | SS sends 199 Early Dialog Terminated (dialog 1) | <-- | 199 Early Dialog Terminated | - | - |
| 28 | SS sends 200 OK for INVITE (dialog 2) | <-- | 200 OK | - | - |
| 29 | Check: Does the UE send ACK? (dialog 2) | --> | ACK | 2 | P |
| 30 | UE maintains dialog 2 by not sending BYE | - | - | 2 | F |
| 31-32 | SS waits 5 seconds and releases the call (dialog 2)  (Annex A.8) | - | - | - | - |

7.24a.4.3 Specific message contents

Table 7.24a.4.3-1: INVITE (in steps 2-8, table 7.24a.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: Annex A.4.1a, Step 1 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| **Supported** |  |  |  |  |
| option-tag |  | *199* |  | RFC 6228 [49] |

Table 7.24a.4.3-2: 183 Session Progress (step 21, table 7.24a.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: Annex A.4.1a, Step 3 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| **To** |  |  |  | RFC 3261 [6] |
| addr-spec |  | same value as received in INVITE message |  |  |
| tag |  | any value different from the one used for dialog 1 |  |  |
| **Contact** |  |  |  | RFC 3261 [6] |
| addr-spec |  | px\_IMS\_CalleeContactUri2 |  |  |
| **Message-body** |  | *o=- 1111111112 1111111111 IN* (addrtype) (unicast-address for SS) |  | RFC 4566 [38] |

Table 7.24a.4.3-2A: PRACK (step 22 table 7.24a.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.2.4, Conditions A1 and A7 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *precondition* |  |  |
| **Message-body** |  | (if present)  Contents is copied from step 6 of annex A.4.1a with the following exceptions:  **Attributes for preconditions:**  *a=curr:qos local sendrecv*  *a=curr:qos remote none*  *a=des:qos mandatory local sendrecv*  *a=des:qos optional remote sendrecv* or *a=des:qos mandatory remote sendrecv* |  | TS 24.229 [7] |

Table 7.24a.4.3-2B: 200 OK (step 23, table 7.24a.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.3.1, Conditions A10 and A22 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| To |  |  |  |  |
| tag |  | Same value as used in step 9 |  |  |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *precondition* |  |  |
| Content-Type |  | (present, if content-type was present in PRACK at step 22) |  |  |
| media-type |  | *application/sdp* |  |  |
| Content-Length |  |  |  |  |
| value |  | length of message-body |  |  |
| **Message-body** |  | (present, if Message-Body was present in PRACK at step 22)  SDP body of the 200 OK response copied from the received PRACK and modified as follows:  - IP address on "c=" lines and transport port on "m=" lines changed to indicate to which IP address and port the UE should start sending the media;  - "o=" line identical to previous SDP sent by SS except that sess-version is incremented;  *-* Attributes for preconditions: *a=curr:qos remote sendrecv*. |  | TS 24.229 [7] |

Table 7.24a.4.3-3: 199 Early Dialog Terminated (step 27, table 7.24a.4.2-1)

|  |
| --- |
| Derivation Path: TS 34.229-1 [2], Annex A.2.26 |

Table 7.24a.4.3-4: 200 OK (step 28, table 7.24a.4.2-1)

|  |
| --- |
| Derivation Path: Annex A.4.1a, step 11, with same to tag as used in step 21 of Test procedure sequence |

Table 7.24a.4.3-5: ACK (step 29, table 7.24a.4.2-1)

|  |
| --- |
| Derivation Path: Annex A.4.1a, step 12, with same to tag as used in step 21 of Test procedure sequence |

## 7.24b MTSI MO Voice Call / Forking / UE receives two preliminary responses and one final response / 5GS

7.24b.1 Test Purpose (TP)

(1)

**with** { UE being registered to IMS and configured to use preconditions and to not use GRUU and to not suppress forking }

**ensure** **that** {

**when** { UE is made to start a voice call, processes the call setup until before completion, and then receives another early dialog indication }

**then** { UE processes the second early dialog until before completion }

}

(2)

**with** { UE having processed two early dialogs until before completion }

**ensure** **that** {

**when** { one of the early dialog moves to established state and the other early dialog is then indicated to be ready for establishment as well }

**then** { UE sends ACK for this other dialog and terminates it right away by sending BYE }

}

7.24b.2 Conformance Requirements

The conformance requirements covered in the present test case are, unless otherwise stated, Rel-15 requirements.

[TS 24.229, clause 5.1.3.1]:

When a final answer is received for one of the early dialogs, the UE proceeds to set up the SIP session. The UE shall not progress any remaining early dialogs to established dialogs. Therefore, upon the reception of a subsequent final 200 (OK) response for an INVITE request (e.g., due to forking), the UE shall:

1) acknowledge the response with an ACK request; and

2) send a BYE request to this dialog in order to terminate it.

7.24b.3 Profile Requirements (Informative)

[GSMA NG.114 V1.0, clause 2.2.7]:

It is also possible that the network or the terminating UE will need to release an early dialog using the 199 (Early Dialog Terminated) response defined in IETF RFC 6228 [85]. To support this, the originating UE must include the "199" option tag in the Supported header field in the initial INVITE request and must understand a 199 (Early Dialog Terminated) response code and act as specified in section 5.1.3.1 of 3GPP TS 24.229 [8].

Note 1: An early dialog that is maintained is one where a SIP 18x response has been received and the early dialogue has not been terminated (e.g. by receipt of a SIP 199 response) prior to receiving a SIP 2xx response.

Note 2: Multiple early dialogs can occur as a result of forking or for other reasons such as announcements or services.

7.24b.4 Test description

7.24b.4.1 Pre-test conditions

System Simulator:

- 1 NR Cell connected to 5GC, default parameters.

UE:

- UE contains either ISIM and USIM applications or only USIM application on UICC.

- UE is configured to register for IMS after switch on.

- UE is configured to use preconditions.

- UE is configured to not use GRUU.

- UE is configured to not suppress forking via the no-fork directive.

Preamble:

- UE is in state 1N-A (TS 38.508-1 [21]) and registered to IMS

7.24b.4.2 Test procedure sequence

Table 7.24b.4.2-1: Main Behaviour

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| St | | Procedure | | Message Sequence | | | | TP | | Verdict | |
|  | |  | | U - S | | Message | |  | |  | |
| 1 | | UE is made to start a voice call | | - | | - | | - | | - | |
| 2-8 | | Steps 2-8 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed | | - | | - | | - | | - | |
| 9-12 | | UE continues call setup (dialog 1)  (steps 2-5 of Annex A.4.1a) | | - | | - | | - | | - | |
| 13 | | SS triggers resource reservation: Step 10 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] is performed. | | - | | - | | - | | - | |
| - | | EXCEPTION: In parallel to steps 14 and 15 below, step 16 occurs. | | - | | - | | - | | - | |
| 14-15 | | SS triggers resource reservation: Steps 11-12 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed. | | - | | - | | - | | - | |
| 16-20 | | UE continues call setup (dialog 1)  (steps 6-10 of A.4.1a) | | - | | - | | - | | - | |
| 21 | | SS sends 183 Session Progress with a different to-tag  (dialog 2)  (step 3 of Annex A.4.1a) | | <-- | | 183 Session Progress | | - | | - | |
| 22 | | UE sends PRACK, including an SDP answer as specified in A.4.1 step 6 (dialog 2)  (step 4 of Annex A.4.1a) | | --> | | PRACK | | - | | - | |
| 23 | | SS responds to PRACK (dialog 2)  (step 5 of Annex A.4.1a) | | <-- | | 200 OK | | - | | - | |
| - | | EXCEPTION: Steps 23A-23B describe behaviour that takes place if the UE doesn't include QOS confirmation in the PRACK message in step 22. | | - | | - | | - | | - | |
| 23A | | Check: Does the UE initiate a second SDP offer in an UPDATE request? (dialog 2)  (Step 6 of Annex A.4.1a) | | --> | | UPDATE | | 1 | | P | |
| 23B | | SS responds to UPDATE including an SDP answer. (dialog 2)  (Step 7 of Annex A.4.1a) | | <-- | | 200 OK | | - | | - | |
| 24 | | SS sends 180 Ringing reliably (dialog 2)  (step 8 of A.4.1a) | | <-- | | 180 Ringing | | - | | - | |
| 25 | | Check: Does the UE acknowledge reception of 180 Ringing by sending PRACK message? (dialog 2)  (step 9 of A.4.1a) | | 🡪 | | PRACK | | 1 | | P | |
| 26 | | SS responds to PRACK (dialog 2) (step 10 of A.4.1a) | | <-- | | 200 OK | | - | | - | |
| 27 | | SS sends 200 OK for dialog 1  (step 11 of Annex A.4.1a) | | <-- | | 200 OK | | - | | - | |
| 28 | | UE sends ACK for dialog 1  (step 12 of Annex A.4.1a) | | --> | | ACK | | - | | - | |
| 29 | | SS sends 200 OK for dialog 2  (step 11 of Annex A.4.1a) | | <-- | | 200 OK | | - | | - | |
| - | | EXCEPTION: Steps 30 and 31 may occur in any order. Note: the UE will issue ACK before BYE but, due to network delays, these messages might arrive in reverse order at the SS | | - | | - | | - | | - | |
| 30 | | Check: Does the UE send an ACK message for dialog 2?  (step 12 of Annex A.4.1a) | | --> | | ACK | | 2 | | P | |
| 31 | | Check: Does the UE send a BYE message for dialog 2? | | --> | | BYE | | 2 | | P | |
| 32 | | SS sends 200 OK for BYE | | <-- | | 200 OK | | - | | - | |
| 33-34 | | SS releases the established call (dialog 1)  (Annex A.8) | | - | | - | | - | | - | |

7.24b.4.3 Specific message contents

Table 7.24b.4.3-1: INVITE (in steps 2-8, table 7.24b.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: Annex A.4.1a, Step 1 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| **Supported** |  |  |  |  |
| option-tag |  | *199* |  | RFC 6228 [49] |

Table 7.24b.4.3-2: 183 Session Progress (step 21, table 7.24b.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: Annex A.4.1a, Step 3 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| **To** |  |  |  | RFC 3261 [6] |
| addr-spec |  | same value as received in INVITE message |  |  |
| tag |  | any value different from the one used for dialog 1 |  |  |
| **Contact** |  |  |  | RFC 3261 [6] |
| addr-spec |  | px\_IMS\_CalleeContactUri2 |  |  |
| **Message-body** |  | *o=- 1111111112 1111111111 IN* (addrtype) (unicast-address for SS) |  | RFC 4566 [38] |

Table 7.24b.4.3-2A: PRACK (step 22 table 7.24b.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.2.4, Conditions A1 and A7 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *Precondition* |  |  |
| **Message-body** |  | (if present)  Contents is copied from step 6 of annex A.4.1a with the following exceptions:  **Attributes for preconditions:**  *a=curr:qos local sendrecv*  *a=curr:qos remote none*  *a=des:qos mandatory local sendrecv*  *a=des:qos optional remote sendrecv* or *a=des:qos mandatory remote sendrecv* |  | TS 24.229 [7] |

Table 7.24b.4.3-2B: 200 OK (step 23, table 7.24b.4.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.3.1, Conditions A10 and A22 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| To |  |  |  |  |
| tag |  | Same value as used in step 9 |  |  |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *precondition* |  |  |
| Content-Type |  | (present, if content-type was present in PRACK at step 25) |  |  |
| media-type |  | *application/sdp* |  |  |
| Content-Length |  |  |  |  |
| value |  | length of message-body |  |  |
| **Message-body** |  | (present, if Message-Body was present in PRACK at step 25)  SDP body of the 200 OK response copied from the received PRACK and modified as follows:  - IP address on "c=" lines and transport port on "m=" lines changed to indicate to which IP address and port the UE should start sending the media;  - "o=" line identical to previous SDP sent by SS except that sess-version is incremented;  *-* Attributes for preconditions: *a=curr:qos remote sendrecv*. |  | TS 24.229 [7] |

Table 7.24b.4.3-3: 200 OK (step 29, table 7.24b.4.2-1)

|  |
| --- |
| Derivation Path: Annex A.4.1a, step 11, with same to tag as used in step 21 of Test procedure sequence |

Table 7.24b.4.3-4: ACK (step 30, table 7.24b.4.2-1)

|  |
| --- |
| Derivation Path: Annex A.4.1a, step 12, with same to tag as used in step 21 of Test procedure sequence |

<End of modifed section>

<Start of modified section>

## 7.26 Mobile Originating CAT / Forking Model / MO Voice Call / 5GS

7.26.1 Test Purpose (TP)

(1)

**with** { UE being registered to IMS and configured to use preconditions and having initiated an MO voice call with preconditions up to the last step before 180 Ringing }

**ensure** **that** {

**when** { UE receives 183 Session Progress on a forked dialog indicating Customized Alerting Tones }

**then** { UE moves forked dialog forward until up to the last step before 180 Ringing }

}

(2)

**with** { UE having moved both dialogs forward up to the last step before 180 Ringing }

**ensure** **that** {

**when** { UE receives 200 OK for INVITE for the first dialog }

**then** { UE acks reception of 200 OK for INVITE }

}

7.26.2 Conformance Requirements

The conformance requirements covered in the present test case are, unless otherwise stated, Rel-15 requirements.

[TS 24.182, clause 4.5.5.1.1]:

The UE shall follow the procedures specified in 3GPP TS 24.229 [4] for session initiation and termination.

[TS 24.628, clause 4.7.2.1]:

Procedures according to 3GPP TS 24.229 [1] shall apply.

Certain services require the usage of the Alert-Info header field, Call-Info header field and Error-Info header field according to procedures specified by IETF RFC 3261 [4].

If the UE detects that in-band information is received from the network as early media, the in-band information received from the network shall override locally generated communication progress information.

NOTE 1: In-band information received from the network overrides any locally generated communication progress information also when the most recently received P-Early-Media header fields of all early dialogs contain "inactive" or "recvonly".

NOTE 2: When multiple early dialogs exist with authorization as "sendrecv" or "sendonly", the mechanism used by the UE to associate the received early media with the correct early dialog is unspecified in this version of this specification.

The UE shall not generate the locally generated communication progress information if an early dialog exists where the last received P-Early-Media header field as described in IETF RFC 5009 [12] contains "sendrecv" or "sendonly".

If an early dialog exists where a SIP 18x response to the SIP INVITE request other than 183 (Session Progress) response was received, no early dialog exists where the last received P-Early-Media header field as described in IETF RFC 5009 [12] contained "sendrecv" or "sendonly" and in-band information is not received from the network, then the UE is expected to render the locally generated communication progress information.

NOTE 3: According to 3GPP TS 22.173 [23] the UE for an MMTel session generates the communication progress information specified in clause F.2 of 3GPP TS 22.001 [24], with parameters applicable for the home network of the UE.

If the UE supports the P-Early-Media header field as defined in IETF RFC 5009 [12], and at least one P-Early-Media header field has been received on at least one early dialog, then the UE shall send any available user generated media, e.g. speech or DTMF, on media stream(s) associated with the early dialog for which the most recent P-Early-Media header field, as described in IETF RFC 5009 [12], contained a "sendrecv" header field value. If there is more than one such early dialog, the UE shall use the early dialog where the P-Early-Media header field was most recently received.

If the UE receives a re-INVITE request containing no SDP offer, the UE shall send a 200 (OK) response containing an SDP offer according to 3GPP TS 24.229 [1] indicating the directionality used by UE as

- "sendonly" if the re-INVITE request is received on a dialog where the associated communication session has been put on hold by the user or has been put on hold by both users at both ends; and

- "sendrecv" otherwise.

7.26.3 Test description

7.26.3.1 Pre-test conditions

System Simulator:

- 1 NR Cell connected to 5GC, default parameters.

UE:

- UE contains either ISIM and USIM applications or only USIM application on UICC.

- UE is configured to register for IMS after switch on.

- UE is configured to use preconditions.

Preamble:

- The UE is in test state 1N-A (TS 38.508-1 [21]) and registered to IMS.

7.26.3.2 Test procedure sequence

Table 7.26.3.2-1: Main Behaviour

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| St | | Procedure | | Message Sequence | | | | TP | | Verdict | |
|  | |  | | U - S | | Message | |  | |  | |
| 1 | | UE is made to initiate a voice call. | | - | | - | | - | | - | |
| 1A-1F | | Steps 2-7 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed. | | - | | - | | - | | - | |
| - | | EXCEPTION: In parallel with Step 2, parallel behaviour defined in table 7.26.3.2-2 takes place | | - | | - | | - | | - | |
| 2-6 | | Steps 1-5 of generic procedures of MO voice call with preconditions defined in A.4.1a. | | - | | Setup dialog 1 | | - | | - | |
| 6A | | Step 10 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] is performed. | | - | | - | | - | | - | |
| - | | EXCEPTION: In parallel to steps 6B and 6C below, step 7occurs. | | - | | - | | - | | - | |
| 6B-6C | | Steps 11-12 of generic procedure specified in Table 4.9.15.2.2-1 of TS 38.508-1 [21] are performed. | | - | | - | | - | | - | |
| 7-8 | | Steps 6-7 of generic procedures of MO voice call with preconditions defined in A.4.1a. | | - | | Setup dialog 1 | | - | | - | |
| 9 | | SS sends an SDP answer. (dialog 2)  (Step 3 of A.4.1a) | | <-- | | 183 Progress | | - | | - | |
| 10 | | Check: Does the UE acknowledge reception of 183 Session Progress? (dialog 2)  (Step 4 of A.4.1a) | | --> | | PRACK | | 1 | | P | |
| 11 | | SS responds to PRACK. (dialog 2)  (Step 5 of A.4.1a) | | <-- | | 200 OK | | - | | - | |
| - | | EXCEPTION: Steps 11A-11B describe behaviour that takes place if the UE doesn't include QOS confirmation in the PRACK message in step 10. | | - | | - | | - | | - | |
| 11A | | Check: Does the UE initiate a second SDP offer in an UPDATE request? (dialog 2)  (Step 6 of Annex A.4.1a) | | --> | | UPDATE | | 1 | | P | |
| 11B | | SS responds to UPDATE including an SDP answer. (dialog 2)  (Step 7 of Annex A.4.1a) | | <-- | | 200 OK | | - | | - | |
| 12-13 | | Void | | - | |  | | - | | - | |
| 14 | | The SS sends 200 OK for INVITE sent in step 1 above | | <-- | | 200 OK | | - | | - | |
| 15 | | Check: Does the UE send the ACK to the 200 OK for the INVITE in step 1? | | --> | | ACK | | 2 | | P | |
| 16 | | The UE is made to release the call | | - | | - | | - | | - | |
| 17 | | The UE releases the call with BYE | | --> | | BYE | | - | | - | |
| 18 | | The SS sends 200 OK for BYE | | <-- | | 200 OK | | - | | - | |

Table 7.26.3.2-2: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE transmits an *RRCReconfigurationComplete* message. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |

7.26.3.3 Specific message contents

Table 7.26.3.3-1: 183 Session Progress with an SDP offer (step 9, table 7.26.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.2.3, Condition A1 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| **To** |  |  |  |  |
| tag |  | any value different from what is used in steps 1-5 |  |  |
| **Contact** |  |  |  |  |
| addr-spec |  | *<sip:cat-as.home1.net;+g.3gpp.icsi ref="urn%3Aurn-7%3gpp-service.ims.icsi.mmtel">* |  |  |
| **P-Early-Media** |  |  |  |  |
| em-param |  | *sendonly* |  |  |
| **Require** |  |  |  | TS 24.229 [7] |
| option-tag |  | *precondition* |  |  |
| **Message-body** |  | **Session description:**  *v=0*  *o=- 1111111112 1111111111 IN* (addrtype) (unicast-address for SS for early-media)  *s=-*  *c=IN* (addrtype) (connection-address for SS for early-media)  *b=AS:37*  **Attributes for preconditions:**  *a=curr:qos local sendrecv*  *a=curr:qos remote none*  *a=des:qos mandatory local sendrecv*  *a=des:qos mandatory remote sendrecv*  *a=conf:qos remote sendrecv*  **Other attributes:**  *a=content:g.3gpp.cat* |  | TS 24.229 [7]  RFC 4566 [38] |

Table 7.26.3.3-2: PRACK (step 10, table 7.26.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.2.4, Conditions A1 and A7 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *precondition* |  |  |
| **Message-body** |  | (if present)  Contents is copied from step 6 of annex A.4.1a with the following exceptions:  **Attributes for preconditions:**  *a=curr:qos local sendrecv*  *a=curr:qos remote sendrecv*  *a=des:qos mandatory local sendrecv*  *a=des:qos optional remote sendrecv* or *a=des:qos mandatory remote sendrecv* |  | TS 24.229 [7] |

Table 7.26.3.3-3: 200 OK (step 11, table 7.26.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 34.229-1 [2], Table in annex A.3.1, Conditions A10 and A22 | | | | |
| Header/param | Cond | Value/remark | Rel | Reference |
| To |  |  |  |  |
| tag |  | Same value as used in step 9 |  |  |
| Require |  | (present, if Message-Body is present) |  |  |
| option-tag |  | *precondition* |  |  |
| Content-Type |  | (present, if content-type was present in PRACK at step 10) |  |  |
| media-type |  | *application/sdp* |  |  |
| Content-Length |  |  |  |  |
| value |  | length of message-body |  |  |
| **Message-body** |  | (present, if Message-Body was present in PRACK at step 10)  SDP body of the 200 OK response copied from the received PRACK and modified as follows:  - IP address on "c=" lines and transport port on "m=" lines changed to indicate to which IP address and port the UE should start sending the media (same as used in step 9 above);  *-* "o=" line identical to previous SDP sent by SS except that sess-version is incremented. |  | TS 24.229 [7] |

<End of modifed section>