**3GPP TSG-CT3 Meeting #113e *C3-21…***

**E-Meeting, 25th – 29th January 2021 (Revision of C3-210044)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **29.163** | **CR** | **1073** | **rev** | **1** | **Current version:** | **16.4.0** |  |
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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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Inclusive language review - 29.163 |
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| ***Source to WG:*** | Nokia, Nokia Shanghai-Bell, Ericsson |
| ***Source to TSG:*** | C3 |
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| ***Work item code:*** | TEI17 |  | ***Date:*** | 2021-01-15 |
|  |  |  |  |  |
| ***Category:*** | **D** |  | ***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 canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | SA plenary has updated TR 21.801 to request the usage if inclusive wording (SP-201142) and has requested all 3GPP WGs to align Rel-17 specifications accordingly (see incoming LS [C3-210021](https://www.3gpp.org/ftp/tsg_ct/WG3_interworking_ex-CN3/TSGC3_113e/Docs/C3-210021.zip)).TS 29.163 contains non-inclusive wording related to the referenced ITU-T H.245 "master-slave-determination" procedure that should be amended accordingly.  |
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| ***Summary of change:*** | References to the ITU-T H.245 "master-slave-determination" procedure are replaced with references to the corresponding clause in H.245. |
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| ***Consequences if not approved:*** | Drafting rules in TR 21.801 and related requests from SA plenary to use inclusive wording are disregarded. |
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| ***Clauses affected:*** | E.2.3.1.1, E.2.3.2.1, E.2.4.1.1, E.4.2.4 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

1st change

#### E.2.3.1.1 Interactions between H.245 or MONA and SIP/SDP

Figure E.2.3.1.1.1 shows examples of interactions between H.245 or MONA procedures and SIP/SDP for IM CN subsystem originated session. Most SIP and ISUP or BICC messages are intentionally omitted, since the SDP may be embedded in various SIP messages and since the in‑band H.245 Messages are not tightly coupled with out-of-band ISUP or BICC messages.

Figure E.2.3.1.1.1 assumes that the IMS peer uses the SIP precondition extension to indicate that preconditions have not yet been met.



Figure E.2.3.1.1.1: Interactions between H.245 and SIP/SDP for IM CN subsystem originated session
IMS peer indicates unmet local preconditions

Upon receipt of a SIP INVITE request containing speech and video Codecs (signal 1 in figure E.2.3.1.1.1) the Interworking Node (consisting of MGCF and IM-MGW) starts the call set-up for multimedia call at the CS side by sending an IAM requesting an UDI bearer (signal 2 in figure E.2.3.1.1.1).

If SDP local preconditions, which are not yet met, are contained in signal 1, the Interworking node should immediately send an SDP answer to allow for the IMS-side bearer set-up to progress. The Interworking node selects codecs supported by the IM-MGW and likely to be supported within the CS network and communicates the selected codecs towards the IMS side within an SDP answer message (signal 3 in figure E.2.3.1.1.1). If theses codecs are contained in the SDP offer, the Interworking Node should select the H.263 codec and may select other codec from the SDP offer in addition. The interworking node should include a b:AS bandwidth modifier with a bandwidth suitable for the selected codec(s), but not higher than 64kbit/s plus RTP/UDP/IP overhead, in the SDP answer to request that the peer does not send media with a higher bandwidth.

The Interworking Node shall engage in an H.223 bearer setup (step 6 in figure E.2.3.1.1.1). If the interworking Node supports MONA (Media Oriented Negotiation Acceleration), it shall first attempt a MONA Channel establishment method negotiation according to Annex K of ITU-T Recommendation H.324 [81]. If the interworking node does not support MONA, it shall use the multiplexing level negotiation procedures of Annex C of H.324 [81]. If the Interworking Node supports MONA, but the remote peer does not do so, a fallback to the multiplexing level negotiation procedures of Annex C of H.324 [81] will occur.

If both the Interworking Node and the remote CS terminal support MONA procedures, the MONA procedures as per ITU-T Recommendation H.324 Annex K [81] may be used to replace the H.245 negotiation (signals 7 - 9) as shown in figure E.2.3.1.1.1.

If MONA procedures are not used, the following applies:

- After the completion of the H.223 bearer setup at the CS side, the Interworking Node shall send a Terminal Capability Set message describing its own capabilities (signal 7 in figure E.2.3.1.1.1). Unless the Interworking Node supports transcoding, the Interworking Node shall only send codecs that have been offered at the IM CN subsystem side (as received in signal 1 in figure E.2.3.1.1.1) within this message.

- The Interworking Node will receive an H.245 Terminal Capability Set message describing the supported Codecs at the peer's side (signal 8 in figure E.2.3.1.1.1).

- The codecs contained both in the sent and received terminal capability set messages may be selected at the CS side. The final decision of the selected codecs at the CS side is taken when the H.245 open logical Channels message (signal 9 in figure E.2.3.1.1.1) is sent or received. The direction of this message is determined by the procedure in H.245 [82] Annex C.2.

If the Interworking Node does not transcode, it should indicate the codecs selected within the H.245 negotiation (signal 11 in figure E.2.3.1.1.1) or within the MONA procedures and enable any media that have previously been put on hold at the IMS side after the completion of the H.245 negotiation or MONA procedures.

The interworking node should include in step 11 of figure E.2.3.1.1.1 the SDP "a" attribute "3gpp\_MaxRecvSDUSize" indicating the maximum SDU size of the application data that can be transmitted to the receiver without segmentation, as specified in clause 12.2.4.6 of 3GPP TS 26.114 [104].

2nd change

#### E.2.3.2.1 Interactions between H.245 or MONA and SIP/SDP

Figure E.2.3.2.1.1 shows examples of interactions between H.245 or MONA procedures and SIP/SDP for IM CN subsystem originated session. Most SIP and ISUP or BICC messages are intentionally omitted, since the SDP may be embedded in various SIP messages and since the in‑band H.245 Messages are not tightly coupled with out-of-band ISUP or BICC messages.

Figure E.2.3.2.1.1 assumes that the IMS peer does not use the SIP precondition extension.



Figure E.2.3.2.1.1 Interactions between H.245 and SIP/SDP for IM CN subsystem originated session
IMS peer does not use SIP preconditions

Upon receipt of a SIP INVITE request containing speech and video Codecs (signal 1 in figure E.2.3.2.1.1) the Interworking Node (consisting of MGCF and IM-MGW) starts the call set-up for multimedia call at the CS side by sending an IAM requesting an UDI bearer (signal 2 in figure E.2.3.2.1.1).

If no unmet local SDP preconditions are contained in signal 1, the Interworking node should defer sending an SDP answer until the H.245 negotiation or MONA procedures is/are completed.

The Interworking Node shall engage in an H.223 bearer setup (step 5 in figure E.2.3.2.1.1). If the interworking Node supports MONA (Media Oriented Negotiation Acceleration), it shall first attempt a MONA Channel establishment method negotiation according to Annex K of ITU-T Recommendation H.324 [81]. If the interworking node does not support MONA, it shall use the multiplexing level negotiation procedures of Annex C of H.324 [81]. If the Interworking Node supports MONA, but the remote peer does not do so, a fallback to the multiplexing level negotiation procedures of Annex C of H.324 [81] will occur.

If both the Interworking Node and the remote CS terminal support MONA procedures, the MONA procedures as per ITU-T Recommenation H.324 [81] Annex K may be used to replace the H.245 negotiation (signals 6 - 8) as shown in figure E.2.3.2.1.1.

If MONA procedures are not used, the following applies:

- After the completion of the H.223 bearer setup at the CS side, the Interworking Node shall send a Terminal Capability Set message describing its own capabilities (signal 6 in figure E.2.3.2.1.1). Unless the Interworking Node supports transcoding, the Interworking Node shall only send codecs that have been offered at the IM CN subsystem side (as received in signal 1 in figure E.2.3.2.1.1) within this message.

- The Interworking Node will receive an H.245 Terminal Capability Set message describing the supported Codecs at the peer's side (signal 7 in figure E.2.3.2.1.1).

- The codecs contained both in the sent and received terminal capability set message may be selected at the CS side. The final decision of the selected codecs at the CS side is taken when the H.245 open logical Channels message (signal 8 in figure E.2.3.2.1.1) is sent or received. The direction of this message is determined by the procedure in H.245 [82] Annex C.2.

If the Interworking Node does not transcode, it shall send an SDP answer (signal 9 in figure E.2.3.2.1.1) indicating the codecs selected within the H.245 negotiation or within the MONA procedures after the completion of the H.245 negotiation or MONA procedures. The interworking node should include a b:AS bandwidth modifier with a bandwidth suitable for the selected codec(s), but not higher than 64kbit/s plus RTP/UDP/IP overhead, in the SDP answer to request that the peer does not send media with a higher bandwidth.

The interworking node should include in Step 9 of figure E.2.3.2.1.1 the SDP "a" attribute "3gpp\_MaxRecvSDUSize" indicating the maximum SDU size of the application data that can be transmitted to the receiver without segmentation, as specified in clause 12.2.4.6 of 3GPP TS 26.114 [104].

3rd change

#### E.2.4.1.1 Normal Call setup

Figure E.2.4.1.1 shows examples of interactions between H.245 or MONA and SIP/SDP for the CS network originated session. Most SIP and ISUP or BICC messages are intentionally omitted, since the SDP may be embedded in various SIP messages and since the in‑band H.245 Messages are not tightly coupled with out-of-band ISUP or BICC messages.



NOTE: Messages 3 and 5 may be combined in some scenarios.

Figure E.2.4.1.1: Interactions between H.245 and SIP/SDP for CS network originated session

Upon receipt of an IAM request for a multimedia Call (signal 1 in figure E.2.4.1.1) the Interworking Node (consisting of MGCF and IM-MGW) starts the call set-up for multimedia call at the IM CN subsystem side by sending an INVITE request (signal 2 in figure E.2.4.1.1). For the INVITE request, the Interworking Node selects codecs supported by the IM-MGW and likely to be supported within the CS Network. The Interworking Node should select the H.263 codec and may select other codec in addition. The interworking node should add a b:AS bandwidth modifier with a bandwidth suitable for the selected codec(s), but not higher than 64kbit/s plus RTP/UDP/IP overhead, in the SDP offer to request that the peer does not send media with a higher bandwidth.

NOTE: The SDP coding to express that either a combined voice and video call, or a voice call, or a Clearmode codec, or some other data call is desired is not defined in the present release.

The Interworking Node shall engage in an H.223 bearer setup (step 7 in figure E.2.4.1.1). If the interworking Node supports MONA (Media Oriented Negotiation Acceleration), it shall first attempt a MONA Channel establishment method negotiation according to Annex K of ITU-T Recommendation H.324 [81]. If the interworking node does not support MONA, it shall use the multiplexing level negotiation procedures of Annex C of H.324 [81]. If the Interworking Node supports MONA, but the remote peer does not do so, a fallback to the multiplexing level negotiation procedures of Annex C of H.324 [81] will occur.

If both the Interworking Node and the remote CS terminal support MONA procedures, the MONA procedures as per ITU-T Recommendation H.324 [81] Annex K may be used to replace the H.245 negotiation (signals 8, 11 and 12) as shown in figure E.2.4.1.1. Furthermore, the SIP codec renegotiation in signals 9 and 10 is then also not applicable.

If MONA procedures are not used, the following applies:

- After the completion of the H.223 bearer setup at the CS side the Interworking Node will receive a H.245 Terminal Capability Set message describing the supported Codecs at the peer's side (signal 8 in figure E.2.4.1.1).

- Due to information received in a Terminal Capability Set message (signal 8 in figure E.2.4.1.1), the Interworking node may send an SDP offer at the IMS side (signal 9 in figure E.2.4.1.1), to offer additional codecs supported at the CS side but not contained in the first SDP offer (signal 2 in figure E.2.4.1.1), or to restrict the selected codecs at the IMS side to codecs which are available at the CS side.

NOTE: It is not clear if the addition of codecs not included in previous SDP exchange has any impacts on IMS procedures, e.g. resource reservation related procedures.

- The Interworking Node shall send a Terminal Capability Set message describing its own capabilities (signal 11 in figure E.2.4.1.1). Unless the Interworking Node supports transcoding, the Interworking node shall only send codecs that are also negotiated at the IM CN subsystem side (as received in signal 3 in figure E.2.4.1.1) within this message. The Interworking Node may defer sending the Terminal Capability Set message for some time to attempt to receive the peer's Terminal Capability set message and perform a possible IMS-side codec re-negotiation. However, to avoid blocking situations, the Interworking Node shall not defer sending the Terminal Capability Set message for an excessive period of time.

- The codecs contained both in the sent and received Terminal Capability Set message may be selected at the CS side. The final decision of the selected codecs at the CS side is taken when the H.245 open logical Channels message (signal 12 in figure E.2.4.1.1) is sent or received. The direction of this message is determined by the procedure in H.245 [82] Annex C.2.

If the Interworking Node does not transcode, it should indicate the codecs selected within the H.245 negotiation or within MONA procedures after the completion of the H.245 negotiation (signal 13 in figure E.2.4.1.1) or MONA procedures.

The interworking node should include in Step 11 of figure E.2.4.1.1 the SDP "a" attribute "3gpp\_MaxRecvSDUSize" indicating the maximum SDU size of the application data that can be transmitted to the receiver without segmentation, as specified in clause 12.2.4.6 of 3GPP TS 26.114 [104].

4th change

### E.4.2.4 Call establishment procedure

The following information shall be provided from the MGCF towards the IM-MGW:

- Properties to start H.223 Negotiation.

- Request for events for Notification of H.245 message received by the IM-MGW.

- Signals to provide H.245 messages that the IM-MGW shall send towards the CS side.

- Properties to provide incoming and outgoing H.223 multiplex table.

- Properties to provide H.223 logical channel parameters.

- Property to provide remote H.223 capabilities.

The Highest Multiplexing Level shall be predefined in the IM-MGW.



NOTE 1: All H.245 messages (from Signal 9 to Signal 18) are transported through the IM-MGW between the MGCF and the CS side, using the procedures described in clause E.4.2.3

NOTE 2: Signals 21 and 22 are omitted if the same codec information has already been provisioned in signal 3.

Figure E.4.2.4.1: Mn signalling interactions for H.245 termination at the MGCF

The MGCF shall request terminations towards the CS network (Signal 1 and 2) and towards the IMS (Signal 3 and 4). For the terminations towards the IMS, the MGCF provides an estimate about the applicable codecs in the required information elements "Local IMS Resources" (for both "Reserve IMS Connection Point" procedure and "Reserve IMS Connection Point and Configure Remote Resources" procedure) and possibly "Remote IMS Resources" (only for "Reserve IMS Connection Point and Configure Remote Resources" procedure).

The MGCF shall request that the H.223 stream is (de-)multiplexed at the MUX termination T2, and that the H.245 control in H.223 Logical channel 0 is separated (signal 6). Furthermore, the MGCF shall request that the H.223 negotiation is started, and shall request to be notified about all H.245 messages received by the IM-MGW.

The IM-MGW shall start the H.223 Multiplexing Level Negotiation after receipt of the corresponding request from the MGCF and CS bearer establishment (Signal 8).

Upon reception of a H.245 Terminal Capability Set message (Signal 9), the MGCF sends a H.245 Acknowledgment message (Signal 10).

The MGCF shall know the H.324 related capabilities of the IM-MGW before starting the H.245 capability negotiation with the CS side, e.g. through configuration. The H.245 Terminal Capability Set message send by the MGCF (Signal 11) should include the codecs which are supported by both the IMS side and the IM-MGW, and the codecs which could be transcoded by the IM-MGW from the codecs supported by the IMS side.

The MGCF may defer sending the Terminal Capability Set message (Signal 11) for some time to wait for codec information from the CS peer's Terminal Capability Set message and perform a possible IMS-side codec re-negotiation. To avoid blocking situations, the MGCF shall not defer sending the signal for an excessive period of time.

To avoid the CS side selecting the codecs that need to be transcoded at the IM-MGW, the MGCF should aim to be the leader in the procedures in H.245 [82] Annex C.2 (Signals 9 to 12). The MGCF shall set the Terminal Type parameter as a number larger than 128 in the message in H.245 [82] Annex B.1.1. The procedure in H.245 [82] Annex C.2 could be combined with the messages used for the H.245 capability exchange.

The codecs contained both in the sent and received terminal capability set message may be selected at the CS side. The final decision of the selected codecs at the CS side is taken with the H.245 open logical channel procedure (Signals 13 to 16).

After the completion of the H.245 multiplex table exchange procedure (Signals 17 to 20), the MGCF shall configure the multiplexing termination T2 by indicating to the IM-MGW the contents of the incoming and outgoing multiplex tables (Signal 21).

If codec information needs to be changed compared to what has been provisioned in signal 3, the MGCF shall also configure T3 with the appropriate video and/or speech codec(s) (signal 23).

The call is in the active state.

End of changes