**3GPP TSG-SA WG4 Meeting #134 S4-252106**

**Dallas, USA, 17 – 21 November, 2025 revision of S4-251836**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **3** | **Current version:** |  |  |
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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:*** |  | | | | | | | | | |
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| ***Source to WG:*** | LM | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***Category:*** |  |  | | | | | ***Release:*** | | | Rel- |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | IVAS SDP parameters have been updated | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | SDP parameters for IVAS are renamed and new are added to align with the updated RTP payload format in TS 26.253.  An editorial correction is also included. | | | | | | | | |
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| ***Consequences if not approved:*** | | Risk for incompatible implementations resulting in fallback to a non-immersive codec | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.1.1, 6.2.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 26.253 CR 0016 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Depends on TS 26.253 CR 0016. | | | | | | | | |
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| ***This CR's revision history:*** | | Rev 1: Re-submission of endorsed CR  Rev 2: Added updates the clauses 5.2.1.1, 10.2.1.12, 10.2.1.14, 10.2.1.15, 10.2.3 and Annex M.4  Rev 3: Removed changes related to RTCP-APP | | | | | | | | |

First change

5.2.1.1 General codec requirements

MTSI clients in terminals offering speech communication shall support narrowband, wideband and super-wideband communication and should support immersive audio communication. The only exception to this requirement is for the MTSI client in constrained terminal offering speech communication, in which case the MTSI client in constrained terminal shall support narrowband and wideband, and should support super-wideband communication.

NOTE: MTSI clients in terminals refers to the definition in clause 3.1.

In addition, MTSI clients in terminals offering speech communication shall support:

- AMR speech codec (TS 26.071 [11], TS 26.090 [12], TS 26.073 [13] and TS 26.104 [14]) including all 8 modes and source controlled rate operation ‎TS 26.093 [15]. The MTSI client in terminal shall be capable of operating with any subset of these 8 codec modes. More detailed codec requirements for the AMR codec are defined in clause 5.2.1.2.

MTSI clients in terminals offering wideband speech communication at 16 kHz sampling frequency shall support:

- AMR-WB codec (TS 26.171 ‎‎[17], TS 26.190 ‎[18], TS 26.173 ‎[19] and TS 26.204 [20]) including all 9 modes and source controlled rate operation ‎TS 26.193 [21]. The MTSI client in terminal shall be capable of operating with any subset of these 9 codec modes. More detailed codec requirements for the AMR-WB codec are defined in clause 5.2.1.3. When the EVS codec is supported, the EVS AMR-WB IO mode may serve as an alternative implementation of AMR-WB as defined in clause 5.2.1.4.

MTSI clients in terminals offering super-wideband or fullband speech communication shall support:

- EVS codec ( TS 26.441 [121], TS 26.444 [124], TS 26.445 [125], TS 26.447 [127], TS 26.451 [131], TS 26.442 [122], TS 26.452 [165] and TS 26.443 [123]) as described below including functions for backwards compatibility with AMR-WB ( TS 26.446 [126]) and discontinuous transmission ( TS 26.449 [129] and TS 26.450 [130]). More detailed codec requirements for the EVS codec are defined in clause 5.2.1.4.

MTSI clients in terminals offering immersive audio communication:

- shall support IVAS codec (TS 26.250 [186], TS 26.252 [187], TS 26.253 [188], TS 26.254 [189], TS 26.255 [190], TS 26.256 [191] and TS 26.258 [192]) as described below, including functions for backwards compatibility with EVS and AMR-WB interoperable mode as described above. More detailed codec requirements for the IVAS codec are defined in clause 5.2.1.7;

- may support dual-mono based on super-wideband or fullband speech communication.

Encoding of DTMF is described in Annex G.

Next change

6.2.2.2 Generating SDP offers

When speech is offered, an MTSI client in terminal sending a first SDP offer in the initial offer-answer negotiation shall include at least one RTP payload type for AMR-NB according to RFC4867 [28] and the MTSI client in terminal shall support and offer a configuration, where the MTSI client in terminal includes the parameter settings as defined in Table 6.1. When EVS-NB is also offered, the MTSI client in terminal shall support and offer a configuration, where the MTSI client in terminal includes the parameter settings for EVS (both EVS Primary and AMR-WB IO modes) as defined in Table 6.2a.

If wideband speech is also offered, then the SDP offer shall also include at least one RTP payload type for AMR-WB according to RFC4867 [28] and the MTSI client in terminal shall support and offer a configuration, where the MTSI client in terminal includes the parameter settings as defined in Table 6.1. When EVS-WB is also offered, the MTSI client in terminal shall support and offer a configuration, where the MTSI client in terminal includes the parameter settings for EVS (both Primary and AMR-WB IO modes) as defined in Table 6.2a. AMR-WB and EVS (including the EVS AMR-WB IO mode) are thus offered using different RTP payload types.

If super-wideband speech is also offered, the SDP offer shall include at least one RTP payload type for EVS and the MTSI client in terminal shall support a configuration where the MTSI client in terminal includes the parameter settings as defined in Table 6.2a.

If fullband speech is also offered, the SDP offer shall include at least one RTP payload type for EVS and the MTSI client in terminal shall support a configuration where the MTSI client in terminal includes the parameter settings as defined in Table 6.2a.

When EVS is offered, the RTP payload type for EVS shall also use parameters for EVS AMR-WB IO mode as defined in Table 6.2a, except for the ‘ecn-capable-rtp’ and ‘leap ect’ parameters. AMR-WB and EVS (including the EVS AMR-WB IO mode) are thus offered using different RTP payload types.

NOTE 1: RFC4867 can also be used for EVS AMR-WB IO when EVS is supported. This may happen after SRVCC when the EVS payload format is used between the ATGW and the MTSI client in terminal while RFC4867 is used between the CS-MGW and the ATGW.

NOTE 2: ECN-triggered adaptation is currently undefined for EVS. This does not prevent ECN-triggered adaptation from being negotiated and used for AMR or AMR-WB.

NOTE 3: When EVS is offered, the audio bandwidths may be different for different directions for the EVS Primary mode, even for ‘sendrecv’ media.

When IVAS is offered, the RTP payload type shall include parameters for immersive audio, EVS Primary mode and EVS AMR-WB IO mode as defined in Table 6.2b.

Clause 5.2.1.6 describes the preference order for how different configurations should be ordered in the list of payload type numbers that is given on the m= line.

**Table 6.1: SDP parameters for AMR-NB or AMR-WB, when the MTSI client in terminal offers the bandwidth-efficient payload format**

|  |  |
| --- | --- |
| **Parameter** | **Usage** |
| octet-align | Shall not be included |
| mode-set | Shall not be included |
| mode-change-period | Shall not be included |
| mode-change-capability | Shall be set to 2 |
| mode-change-neighbor | Shall not be included |
| maxptime | Shall be set to 240, see also Table 7.1 |
| crc | Shall not be included |
| robust-sorting | Shall not be included |
| interleaving | Shall not be included |
| ptime | Shall be set according to Table 7.1 |
| channels | Shall either be set to 1 or be omitted |
| max-red | Shall be included and shall be set to 220 or less |
| ecn-capable-rtp: leap ect=0 | Shall be included if offering to use ECN and if the session setup allows for bit-rate adaptation |

**Table 6.2: SDP parameters for AMR-NB or AMR-WB, when the MTSI client in terminal offers the octet-aligned payload format**

|  |  |
| --- | --- |
| **Parameter** | **Usage** |
| octet-align | Shall be set to 1 |
| mode-set | Shall not be included |
| mode-change-period | Shall not be included |
| mode-change-capability | Shall be set to 2 |
| mode-change-neighbor | Shall not be included |
| maxptime | Shall be set to 240, see also Table 7.1 |
| crc | Shall not be included |
| robust-sorting | Shall not be included |
| interleaving | Shall not be included |
| ptime | Shall be set according to Table 7.1 |
| channels | Shall either be set to 1 or be omitted |
| max-red | Shall be included and shall be set to 220 or less |
| ecn-capable-rtp: leap ect=0 | Shall be included if offering to use ECN and if the session setup allows for bit-rate adaptation |

**Table 6.2a: SDP parameters for EVS (both Primary and AMR-WB IO modes, when the MTSI client in terminal offers EVS**

|  |  |
| --- | --- |
| **Parameter** | **Usage** |
| ptime | Shall be set according to Table 7.1 |
| maxptime | Shall be set to 240, see also Table 7.1 |
| evs-mode-switch | MTSI client in terminal shall not include evs-mode-switch in the initial SDP offer. |
| hf-only | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| dtx | MTSI client in terminal shall not include dtx in the initial SDP offer. |
| dtx-recv | MTSI client in terminal shall not include dtx-recv. |
| max-red | Shall be included and shall be set to 220 or less. |
| channels | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| cmr | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| br | An MTSI client in terminal supporting the EVS codec is required to support the entire bit-rate range but may offer a smaller bit-rate range or even a single bit-rate. |
| br-send | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| br-recv | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| bw | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| bw-send | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| bw-recv | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| ch-send | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| ch-recv | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| ch-aw-recv | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| mode-set | Shall not be included |
| mode-change-period | Shall not be included |
| mode-change-capability | The SDP offer-answer considerations in TS 26.445 [125] apply. |
| mode-change-neighbor | Shall not be included |

**Table 6.2b: SDP parameters for IVAS (including EVS Primary and EVS AMR-WB IO modes)**

|  |  |
| --- | --- |
| **Parameter** | **Usage** |
| ptime | Shall be set according to Table 7.1 |
| maxptime | Shall be set to 240, see also Table 7.1 |
| evs-mode-switch | Shall be set according to Table 6.2a |
| hf-only | If present, it shall be set to 1 |
| dtx | Shall be set according to Table 6.2a |
| dtx-send |  |
| dtx-recv | Shall be set according to Table 6.2a |
| max-red | Shall be included and shall be set to 220 or less. |
| channels | Shall not be present |
| cmr | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| br | Shall be set according to Table 6.2a |
| br-send | Shall be set according to Table 6.2a |
| br-recv | Shall be set according to Table 6.2a |
| bw | Shall be set according to Table 6.2a |
| bw-send | Shall be set according to Table 6.2a |
| bw-recv | Shall be set according to Table 6.2a |
| ch-send | Shall not be included |
| ch-recv | Shall not be included |
| ch-aw-recv | Shall be set according to Table 6.2a |
| mode-set | Shall be set according to Table 6.2a |
| mode-change-period | Shall be set according to Table 6.2a |
| mode-change-capability | Shall be set according to Table 6.2a |
| mode-change-neighbor | Shall be set according to Table 6.2a |
| mono-init | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| mono-init-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| mono-init-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ibr | An MTSI client in terminal supporting the IVAS codec is required to support the entire bit-rate range but may offer a smaller bit-rate range or even a single bit-rate. |
| ibr-send | The SDP offer-answer considerations for ibr and in TS 26.253 [188] apply. |
| ibr-recv | The SDP offer-answer considerations for ibr in TS 26.253 [188] apply. |
| ibw | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ibw-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ibw-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| cf | Shall not be included. |
| cf-send | Shall be included and contain all coded formats the offerer is supporting and prepared to send. |
| cf-recv | Shall contain all formats of Table A.4.1-1 of [188] or not be included. |
| cf-sub-info | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ivas-icm | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ivas-icm-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ivas-icm-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ns-mode-init | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ns-mode-init-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| ns-mode-init-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-types | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-types-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-types-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-br | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-br-send | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| pi-br-recv | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| sr-dof | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| sr-tc | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| sr-tc-fr | The SDP offer-answer considerations in TS 26.253 [188] apply. |
| sr-tc-cp | The SDP offer-answer considerations in TS 26.253 [188] apply. |

When the channels parameter is omitted then this means that one channel is being offered.

The mode-set parameter is omitted, allowing maximum freedom for the visited network.

The mode-change-capability parameter is included and set to 2 for AMR-NB and AMR-WB, to support potential interworking with 2G radio access (GERAN). For EVS AMR-WB IO it is not required to include the mode-change-capability parameter.

An example of an SDP offer for AMR-NB is shown in Table A.1.1. An example of an SDP offer for both AMR-NB and AMR-WB is shown in Table A.1.2. An example of SDP offer for AMR-NB, AMR-WB, and EVS is shown in Table A.14.1.

An SDP example for offering and accepting a dual-mono session for EVS is shown in clauses A.14.1 and A.14.3.

SDP examples for IVAS are shown in clause A.19.

An MTSI client in terminal may divide the offer-answer negotiation into several phases and offer different configurations in different SDP offers. If this is done then the first SDP offer in the initial offer-answer negotiation shall include the most preferable configurations. For AMR-NB, this means that the first SDP offer in the initial offer-answer negotiation shall include at least one RTP payload type for AMR-NB with the parameters as defined in Table 6.1. If wideband speech is offered then the first SDP offer in the initial offer-answer negotiation shall include also at least one RTP payload type for AMR-WB with the parameters as defined in Table 6.1. This also means that offers for octet-aligned payload format do not need to be included in the first SDP offer. If super-wideband or fullband speech is offered, the first SDP offer in the initial offer-answer negotiation shall include at least one RTP payload type for EVS with the parameters as defined in [125]. One example of dividing the offer-answer negotiation into two phases, and the corresponding SDP offers, is shown in clause A.1.1.2.2.

NOTE 4: Dividing the offer-answer negotiation into several phases may lead to never offering the less preferred configurations, if the other end-point accepts to use at least one of the configurations offered in the initial SDP offer.

If the speech media is re-negotiated during the session then the knowledge from earlier offer-answer negotiations should be used in order to shorten the session re-negotiation time. I.e., failed offer-answer transactions shall not be repeated.

End changes