

Source: TSG-SA WG4

Title: CRs TS 26.235 on Support for 128 kbps video in the PS conversational services & editorial corrections (Release 6)

Document for: Discussion / Decision

Agenda Item: 7.4.3

The following CRs, agreed at the TSG-SA WG4 meeting #32, are presented to TSG SA #25 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.235	007	1	Rel-6	Language improvement and alignment	D	6.1.0	S4	TSG-SA WG4#32	S4-040536
26.235	009		Rel-6	Support for 128 kbps video in the packet-switched conversational services	B	6.1.0	S4	TSG-SA WG4#32	S4-040566

CHANGE REQUEST

⌘ **26.235 CR 007** ⌘ rev **1** ⌘ Current version: **6.1.0** ⌘

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Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Language improvement and alignment		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ TEI6	Date:	⌘ 14/09/2004
Category:	⌘ D	Release:	⌘ Rel-6
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction 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 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ Wording and expressions used for PS conversational codec definitions (in TS 26.235) are different from PSS codec definitions (in TS 26.234) even in the case the same codecs are defined for use. Some references are missing or with a wrong title.
Summary of change:	⌘ Wording of PS conversational codec definitions (in TS 26.235) has been made more clear and more aligned to the one used for PSS (in TS 26.234). References to the C-code TSs are included also for AMR-WB codec (like for AMR codec) for completeness. Furthermore, the title of reference [37] is also corrected.
Consequences if not approved:	⌘ Reader of TSs 26.235 and 26.234 may wonder why different language is used even in case when the same codecs are defined for use, and may therefore be confused.

Clauses affected:	⌘ 2, 5, 6						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
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Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
Other comments:	⌘						

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [2] IETF RFC 2327: "SDP: Session Description Protocol".
- [3] IETF RFC 2429: "RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)".
- [4] IETF RFC 1889: "RTP: A Transport Protocol for Real-Time Applications".
- [5] IETF RFC 3016: "RTP Payload Format for MPEG-4 Audio/Visual Streams".
- [6] ITU-T Recommendation H.263: "Video coding for low bit rate communication".
- [7] 3GPP TS 26.110: "Codec for Circuit Switched Multimedia Telephony Service; General Description".
- [8] 3GPP TS 26.111: "Codec for Circuit Switched Multimedia Telephony Service; Modifications to H.324".
- [9] 3GPP TS 26.071: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; General description".
- [10] 3GPP TS 26.090: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Transcoding functions".
- [11] 3GPP TS 26.073: "Adaptive Multi-Rate (AMR); ANSI C source code".
- [12] 3GPP TS 26.104: "ANSI-C code for the floating-point AMR speech codec".
- [13] ISO/IEC 14496-2 (1999): "Information technology - Coding of audio-visual objects - Part 2: Visual".
- [14] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP".
- [15] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP".
- [16] 3GPP TS 26.171 (Release 5): "AMR speech codec, wideband; General description".
- [17] 3GPP TS 26.190 (Release 5): "Mandatory Speech Codec speech processing functions AMR Wideband speech codec; Transcoding functions".
- [18] 3GPP TS 26.201 (Release 5): "AMR speech codec, wideband; Frame structure".
- [19] ITU-T Recommendation H.263 (annex X): "Annex X, Profiles and levels definition".
- [20] 3GPP TS 23.228: "IP multimedia subsystem; stage 2".
- [21] 3GPP TS 23.107: "QoS Concept and Architecture".

- [22] 3GPP TS 23.207: "End to end quality of service concept and architecture".
- [23] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [24] IETF RFC 2793: "RTP Payload for Text Conversation".
- [25] ITU-T Recommendation T.140 (1998): "Protocol for multimedia application text conversation" (with amendment 2000).
- [26] 3GPP TS 26.101: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Frame Structure".
- [27] IETF RFC 2119: "Key words for use in RFCs to Indicate Requirement Levels".
- [28] 3GPP TS 26.093: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Source Controlled Rate operation".
- [29] 3GPP TS 46.060: "Enhanced Full Rate (EFR) speech transcoding".
- [30] TIA/EIA -136-Rev.A, part 410 - "TDMA Cellular/PCS – Radio Interface, Enhanced Full Rate Voice Codec (ACELP). Formerly IS-641. TIA published standard, 1998".
- [31] ARIB, RCR STD-27H, "Personal Digital Cellular Telecommunication System RCR Standard".
- [32] IETF draft-westberg-realtime-cellular-01.txt, "Realtime Traffic over Cellular Access Networks".
- [33] IETF draft-larzon-udplite-03.txt, "The UDP Lite Protocol".
- [34] 3GPP TS 26.092: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Comfort noise aspects".
- [35] IETF RFC 3267: "RTP payload format and file storage format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) audio codecs", March 2002.
- [36] IETF RFC 2833: "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals", May 2000.
- [37] 3GPP TS 26.243: "[ANSI C code for the Fixed-Point Distributed Speech Recognition Extended Advanced Front-end](#)~~TS Software documentation for fixed point DSR Extended Front End~~".
- [38] RTP Payload Formats for European Telecommunications Standards Institute (ETSI) European Standard ES 202 050, ES 202 211, and ES 202 212 Distributed Speech Recognition Encoding draft-ietf-avt-rtp-dsr-codecs-00.txt

CR Editor's note: The above document cannot be formally referenced until it is published as an RFC.

- [39] [3GPP TS 26.173: "ANSI-C code for the Adaptive Multi Rate - Wideband \(AMR-WB\) speech codec"](#).
- [40] [3GPP TS 26.204: "ANSI-C code for the Floating-point Adaptive Multi-Rate Wideband \(AMR-WB\) speech codec"](#).

The other changes are in Clauses 5 and 6:

5 System overview

The present document describes the required codec related elements for 3G PS multimedia terminal:

- ~~mandatory and optional~~ codecs for 3G PS multimedia terminal;
- media encapsulation and decapsulation rules for each ~~mandatory and optional~~ codec.

6 Functional requirements

SIP protocol itself does not mandate any codecs. Standardisation of ~~mandatory~~ codecs does not prevent the use of other codecs that can be signalled using the SDP protocol. 3G PS multimedia terminals shall be able to use the same audio and video codecs applied in 3G-324M [8]. This will ensure the interoperability with 3G circuit switched multimedia telephony.

6.1 Audio

3G PS multimedia terminals offering audio communication shall support AMR narrowband speech codec [9], [10], [11] to [12]. ~~This is the mandatory speech codec.~~

The AMR wideband speech codec shall be supported when the 3G PS multimedia terminal supports wideband speech working at 16 kHz sampling frequency [16], [17], [39], [40].

The usage of telephone-event media format is recommended for DTMF.

6.2 Video

3G PS multimedia terminals offering video communication shall support ITU-T recommendation H.263 [6] baseline.- ~~This is the mandatory video codec.~~

H.263 [19] version 2 Interactive and Streaming Wireless Profile (Profile 3) Level 10 should be supported. ~~This is an optional video codec.~~

ISO/IEC 14496-2 [13] (MPEG-4 Visual) Simple Profile at Level 0 should be supported. ~~This is an optional video codec.~~

6.3 Real time text

3G PS multimedia terminals offering real time text conversation should support ITU-T Recommendation T.140 [25] Text Conversation presentation coding.

6.4 Interactive and background data

SIP signalling offers initialisation of packet switched interactive or background class reliable data services as well. However specification of such data services are outside the scope of the present document.

6.5 Speech Enabled Service

3G PS multimedia terminals offering speech enabled services should support the DSR Extended Advanced Front-end codec [37]

Speech enabled services may also be supported with AMR or AMR-WB audio codecs, however it is noted that there is a substantial performance advantage from DSR [see Annex D].

CHANGE REQUEST

26.235 CR 009 # rev - # Current version: 6.1.0

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the # symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Support for 128 kbps video in the packet-switched conversational services		
Source:	# TSG SA WG4		
Work item code:	# CEPSCM	Date:	# 14/09/2004
Category:	# B	Release:	# Rel-6
	<i>Use one of the following categories:</i> F (correction) A (corresponds to a correction 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 .	<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)	

Reason for change:	# Enable higher bitrates for current video codecs.
Summary of change:	# Levels for 128 kbps video are referenced for H.263 and MPEG-4 Visual.
Consequences if not approved:	# Release-6 will only be capable of 64 kbps.

Clauses affected:	# 2, 6.2, A.1.1				
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications # <input type="checkbox"/>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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<input type="checkbox"/>	<input checked="" type="checkbox"/>				
Other comments:	# Support for the H.264 (AVC) video is included in CR 26.235 008				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked # contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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- [5] IETF RFC 3016: "RTP Payload Format for MPEG-4 Audio/Visual Streams".
- [6] ITU-T Recommendation H.263 [\(02/98\)](#): "Video coding for low bit rate communication".
- [7] 3GPP TS 26.110: "Codec for Circuit Switched Multimedia Telephony Service; General Description".
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- [13] ISO/IEC 14496-2 ~~(1999)~~:[2004](#): "Information technology - Coding of audio-visual objects - Part 2: Visual".
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- [18] 3GPP TS 26.201 (Release 5): "AMR speech codec, wideband; Frame structure".
- [19] ITU-T Recommendation H.263 ~~(annex X)~~ – [Annex X \(03/04\)](#): "Annex X; Profiles and levels definition".
- [20] 3GPP TS 23.228: "IP multimedia subsystem; stage 2".
- [21] 3GPP TS 23.107: "QoS Concept and Architecture".
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- [23] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
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6.2 Video

3G PS multimedia terminals offering video communication shall support ITU-T recommendation H.263 [6][19] baseline [\(Profile 0\) Level 45](#). This is the mandatory video codec.

H.263 [6][19] version 2 Interactive and Streaming Wireless Profile (Profile 3) Level ~~45~~40 should be supported. This is an optional video codec.

ISO/IEC 14496-2 [13] (MPEG-4 Visual) Simple Profile at Level 0~~b~~ should be supported. This is an optional video codec.

A.1.1 H.263 video codec

H.263 was approved as a standard in 1996. Since then, version 2 and version 3 enhancing version 1 have been approved in 1998 and 2000 respectively. As of today, H.263 contains an extensive set of mandatory and optional coding tools.

H.263 [6] annex X [\[19\]](#)~~(going to be approved in 2001)~~ defines codec profiles for various target environments.

The Baseline Profile (Profile 0) stands for H.263 with no optional modes of operation. It includes the basic coding tool set common in modern video coding standards. It provides simple means to insert resynchronisation points within the video bitstream, and, therefore, it enables recovery from erroneous or lost data.

The Version 2 Interactive and Streaming Wireless Profile (Profile 3) provides enhanced compression efficiency when compared to the Baseline Profile. Moreover, it provides enhanced error resilience for delivery to wireless devices. Specifically, Profile 3 includes the following optional coding modes:

- 1) Advanced INTRA Coding (annex I). Use of this mode improves the compression efficiency for INTRA macroblocks (whether within INTRA pictures or predictively-coded pictures);
- 2) Deblocking Filter (annex J). A deblocking filter improves image quality by reducing blocking artifacts. When compared to deblocking filtering performed as a postprocessing operation, the Deblocking Filter Mode reduces the amount of required memory, as no additional picture memory is needed for the filtered images. This mode also includes the four-motion-vector-per-macroblock feature and picture boundary extrapolation for motion compensation, both of which can further improve compression efficiency;
- 3) Slice Structured Mode (annex K). This mode provides a flexible mechanism to insert resynchronisation points within the video bitstream for recovery from erroneous or lost data.
- 4) Modified Quantisation (annex T). This mode enables flexible quantiser control that can be used in sophisticated bit-rate control algorithms. In addition, it improves chrominance fidelity.

[FFS]