

Technical Specification Group Services and System Aspects **TSGS#15(02)0173**
Meeting #15, Cheju Island, Korea, 11-14 March 2002

Source: MCC

Title: CR to TS 26.234 on " References to "3GPP AMR-WB codec" replaced by "ITU-T Rec. G.722.2" and "RFC 3267" "
(Release 4)

Document for: Approval

Agenda Item: 7.4.3

The following CR is presented to TSG SA #15 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.234	023		REL-4	References to "3GPP AMR-WB codec" replaced by "ITU-T Rec. G.722.2" and "RFC 3267"	F	4.2.0	S4	TSG-SA#15 Plenary	

CHANGE REQUEST

⌘ **26.234 CR 23** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Replacement of references to "3GPP AMR-WB codec" into "ITU-T Rec. G.722.2"		
Source:	⌘ MCC		
Work item code:	⌘ AMRWB	Date:	⌘ 12 March 2002
Category:	⌘ F	Release:	⌘ REL-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <u>TR 21.900</u> .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ TSG SA#11 asked already to remove all 3GPP AMR-WB references to TS 26.234 Release 4, and this decision was reiterated at TSG SA#15, where it was agreed to replace all references to "3GPP AMR-WB codec" by "ITU-T Rec. G.722.2".
Summary of change:	⌘ All references to AMR-WB replaced by ITU-T Rec. G.722.2
Consequences if not approved:	⌘ Request from SA#11 and SA#15 Plenaries not fulfilled.

Clauses affected:	⌘ Clause 2, 5.4, 6.2, D.1, D.7 and new Annex E		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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.

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] (void)
- [2] 3GPP TS 26.233: "End-to-end transparent streaming service; General description".
- [3] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [4] IETF RFC 1738: "Uniform Resource Locators (URL)", Berners-Lee, Masinter & McCahill, December 1994.
- [5] IETF RFC 2326: "Real Time Streaming Protocol (RTSP)", Schulzrinne H., Rao A. and Lanphier R., April 1998.
- [6] IETF RFC 2327: "SDP: Session Description Protocol", Handley M. and Jacobson V., April 1998.
- [7] IETF STD 0006: "User Datagram Protocol", Postel J., August 1980.
- [8] IETF STD 0007: "Transmission Control Protocol", Postel J., September 1981.
- [9] IETF RFC 1889: "RTP: A Transport Protocol for Real-Time Applications", Schulzrinne H. et al., January 1996.
- [10] IETF RFC 1890: "RTP Profile for Audio and Video Conferences with Minimal Control", Schulzrinne H. et al., January 1996.
- [11] ~~3GPP TS 26.235: "Packet Switched Conversational Multimedia Applications; Default Codecs; Annex B: AMR and AMR-WB RTP payload and MIME type registration". 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.~~
- [12] void
- [13] IETF RFC 3016: "RTP Payload Format for MPEG-4 Audio/Visual Streams", Kikuchi Y. et al., November 2000.
- [14] IETF RFC 2429: "RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)", Bormann C. et al., October 1998.
- [15] IETF RFC 2046: "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", N. Freed, N. Borenstein, November 1996.
- [16] IETF RFC 3023: "XML Media Types", Murata, M., St.Laurent, S., Kohn, D., January 2001.
- [17] IETF RFC 2616: "Hypertext Transfer Protocol - HTTP/1.1", Fielding R. et al., June 1999.
- [18] 3GPP TS 26.071: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; General description".
- [19] 3GPP TS 26.101: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Frame Structure".

- [20] ITU-T Recommendation G.722.2 (2002) Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB). 3GPP TS 26.171: "AMR speech codec, wideband; General description".
- [21] ISO/IEC 14496-3 (1999): "Information technology - Coding of audio-visual objects - Part 3: Audio".
- [22] ITU-T Recommendation H.263: "Video coding for low bit rate communication".
- [23] ITU-T Recommendation H.263 (annex X): "Annex X, Profiles and levels definition".
- [24] ISO/IEC 14496-2 (1999): "Information technology - Coding of audio-visual objects - Part 2: Visual".
- [25] ISO/IEC 14496-2:1999/FDAM4, ISO/IEC JTC1/SC 29/WG11 N3904, Pisa, January, 2001
- [26] ITU-T Recommendation T.81 (1991) | ISO/IEC 10918-1 (1992): "Information technology - Digital compression and coding of continuous-tone still images - Requirements and guidelines.
- [27] "JPEG File Interchange Format", Version 1.02, September 1, 1992.
- [28] W3C Recommendation: "XHTML Basic", <http://www.w3.org/TR/2000/REC-xhtml-basic-20001219>, December 2000
- [29] ISO/IEC 10646-1 (2000): "Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane".
- [30] The Unicode Consortium: "The Unicode Standard", Version 3.0 Reading, MA, Addison-Wesley Developers Press, 2000, ISBN 0-201-61633-5.
- [31] W3C Recommendation: "Synchronized Multimedia Integration Language (SMIL 2.0)", <http://www.w3.org/TR/2001/REC-smil20-20010807/>, August 2001.
- [32] CompuServe Incorporated: "GIF Graphics Interchange Format: A Standard defining a mechanism for the storage and transmission of raster-based graphics information", Columbus, OH, USA, 1987.
- [33] CompuServe Incorporated: "Graphics Interchange Format: Version 89a", Columbus, OH, USA, 1990.
- [34] ISO/IEC 14496-1 (2001): "Information technology - Coding of audio-visual objects - Part 1: Systems".
- [35] 3GPP TS 23.140: "Multimedia Messaging Service (MMS), Functional description stage 2/3".
- [36] ISO/IEC 15444-1 (2000): "Information technology - JPEG 2000 image coding system: Core coding system; Annex I: The JPEG 2000 file format".
- [37] ~~3GPP TS 26.201: "AMR Wideband Speech Codec; Frame Structure"~~.void

5.4 MIME media types

For continuous media (speech, audio and video) the following MIME media types shall be used:

- AMR narrow band speech codec (see clause 7.2) MIME media type as defined in [11];
- AMR wide band speech codec (see clause 7.2) MIME media type as defined in [12];
- MPEG-4 AAC audio codec (see clause 7.3) MIME media type as defined in RFC 3016 [13].
- MPEG-4 video codec (see clause 7.4) MIME media type as defined in RFC 3016 [13];
- H.263 [22] video codec (see clause 7.4) MIME media type as defined in annex C, clause C.1 of the present document.

MIME media types for JPEG, GIF and XHTML can be used both in the "Content-type" field in HTTP and in the "type" attribute in SMIL 2.0. The following MIME media types shall be used for these media:

- JPEG (see clause 7.5) MIME media type as defined in [15];
- GIF (see clause 7.6) MIME media type as defined in [15];
- XHTML (see clause 7.8) MIME media type as defined in annex C clause C.2 of the present document.

MIME media type used for SMIL files shall be according to [31] and for SDP files according to [6].

6.2 RTP over UDP/IP

The IETF RTP [9] and [10] provides a means for sending real-time or streaming data over UDP (see [7]). The encoded media is encapsulated in the RTP packets with media specific RTP payload formats. RTP payload formats are defined by IETF. RTP also provides a protocol called RTCP (see clause 6 in [9]) for feedback about the transmission quality.

RTP/UDP/IP transport of continuous media (speech ,audio and video) shall be supported.

For RTP/UDP/IP transport of continuous media the following RTP payload formats shall be used:

- AMR narrow band speech codec (see clause 7.2) RTP payload format according to [11];
- AMR wide band speech codec (see clause 7.2) RTP payload format according to [11];
- MPEG-4 AAC audio codec (see clause 7.3) RTP payload format according to RFC 3016 [13];
- MPEG-4 video codec (see clause 7.4) RTP payload format according to RFC 3016 [13];
- H.263 [22] video codec (see clause 7.4) RTP payload format according to RFC 2429 [14];

D.1 General

The purpose of this annex is to define the necessary structure for integration of the H.263, AMR and AMR-WB media specific information in an MP4 file. Clauses D.2 to D.4 give some background information about the Sample Description atom, VisualSampleEntry atom and the AudioSampleEntry atom in the MPEG-4 file format. Then, the definitions of the SampleEntry atoms for AMR, AMR-WB and H.263 are given in clauses D.5 to D.8.

AMR and AMR-WB data is stored in the stream according to the AMR and AMR-WB storage format for single channel header of Annex E clause B.5.2 of [11], without the AMR magic numbers.

D.7 AMRSpecificAtom field for AMRSampleEntry atom

The AMRSpecificAtom fields for AMR and AMR-WB shall be as defined in table D.6. The AMRSpecificAtom for the AMRSampleEntry Atom shall always be included if the MP4 file contains AMR or AMR-WB media.

Table D.6: The AMRSpecificAtom fields for AMRSampleEntry

Field	Type	Details	Value
AtomHeader.Size	Unsigned int(32)		
AtomHeader.Type	Unsigned int(32)		'damr'
DecSpecificInfo	AMRDecSpecStruc	Structure which holds the AMR and AMR-WB Specific information	

AtomHeader Size and Type: indicate the size and type of the AMR decoder-specific atom. The type must be 'damr'.

DecSpecificInfo: the structure where the AMR and AMR-WB stream specific information resides.

The AMRDecSpecStruc is defined as follows:

```

struct AMRDecSpecStruc{
    Unsigned int (32)   vendor
    Unsigned int (8)   decoder_version
    Unsigned int (16)  mode_set
    Unsigned int (8)   mode_change_period
    Unsigned int (8)   frames_per_sample
}

```

The definitions of AMRDecSpecStruc members are as follows:

vendor: four character code of the manufacturer of the codec, e.g. 'WXYZ'. The vendor field gives information about the vendor whose codec is used to create the encoded data. It is an informative field which may be used by the decoding end. If a manufacturer already has a four character code, it is recommended that it uses the same code in this field. Else, it is recommended that the manufacturer creates a four character code which best addresses the manufacturer's name. It can be safely ignored.

decoder_version: version of the vendor's decoder which can decode the encoded stream in the best (i.e. optimal) way. This field is closely tied to the vendor field. It may give advantage to the vendor which has optimal encoder-decoder version pairs. The value is set to 0 if decoder version has no importance for the vendor. It can be safely ignored.

mode_set: the active codec modes. Each bit of the mode_set parameter corresponds to one mode. The bit index of the mode is calculated according to the 4 bit FT field of the AMR or AMR-WB frame structure. The mode_set bit structure is as follows: (B15xxxxxB8B7xxxxxB0) where B0 (Least Significant Bit) corresponds to Mode 0, and B8 corresponds to Mode 8.

The mapping of existing AMR modes to FT is given in table 1.a in [19]. A value of 0x81FF means all modes and comfort noise frames are possibly present in an AMR stream.

The mapping of existing AMR-WB modes to FT is given in Table E.1-a in TS 26.201-[2037]. A value of 0x83FF means all modes and comfort noise frames are possibly present in an AMR-WB stream.

Annex E (normative): RTP payload format and file storage format for AMR and AMR-WB audio

The AMR and AMR-WB speech codec RTP payload, storage format and MIME type registration are specified in [11].