INTERNATIONAL TELECOMMUNICATION UNION

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OF ITU

G.722.2

Annex F

(11/2002)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital terminal equipments – Coding of analogue signals by methods other than PCM

Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB)

Annex F: AMR-WB usage in H.245

ITU-T Recommendation G.722.2 – Annex F

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ITU-T Recommendation G.722.2

Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB)

Annex F

AMR-WB usage in H.245

Summary

This annex specifies the packet format and capability signalling for G.722.2 Adaptive Multi-Rate Wideband (AMR-WB) for usage with H.245 specification. Both the format and the capability parameters are fully compatible with the corresponding AMR-WB RTP definitions to allow seamless interoperability.

Source

Annex F to ITU-T Recommendation G.722.2 was prepared by ITU-T Study Group 16 (2001-2004) and approved under the WTSA Resolution 1 procedure on 29 November 2002.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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ITU-T Recommendation G.722.2

Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB)

Annex F

AMR-WB usage in H.245

F.1 Scope

This annex specifies the packet format and capability signalling for G.722.2 Adaptive Multi-Rate Wideband (AMR-WB) [3] for usage with H.245 specification. Both the format and the capability parameters are fully compatible with the corresponding AMR-WB RTP definitions to allow seamless interoperability.

F.2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[1] SJOBERG (J.) *et al*., Real-Time Transport Protocol (RTP) Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs, *RFC 3267*, June 2002.

[2] ITU-T Recommendation H.245 (2003), *Control protocol for multimedia communication*.

[3] ITU-T Recommendation G.722.2 (2002), *Wideband coding of speech at around 16 kbit/s using Adaptive Multi-Rate Wideband (AMR-WB)*.

F.3 Introduction

The packet format and corresponding capability signalling for the Adaptive Multi-Rate Wideband (AMR-WB) speech codec within Real-Time Transport Protocol (RTP) is specified in [1]. This packet format is not merely a way to encapsulate AMR-WB speech frames into the payload of the RTP packet but also introduces a number of optional packetization features for enhanced robustness against transmission errors. Furthermore, also a set of parameters for out-of-band signalling of packetizer capabilities is specified.

This annex specifies the usage of the packet format defined in [1] and provides corresponding capability definitions for usage with H.245. This approach enables one-to-one mapping between H.245 and a system using parameters specified in [1] (e.g. MIME signalling) thus providing full interoperability.

F.4 ITU-T Rec. G.722.2 (Adaptive Multi-Rate Wideband) capability definitions for H.245

Table F.1 defines the capability identifier for G.722.2 (AMR-WB) capabilities. Tables F.2 to F.10 define the associated capability parameters. The details of the packetization of speech frames of AMR-WB into the octet structure and mode signalling are specified in [1]. Because of the request mode procedure provided by H.245 [2], the in-band mode request mechanism specified in [1] shall not be used, and the *CMR* field of the packet shall always be set to value 15 indicating "no request".

Table F.1/G.722.2 – G.722.2 Capability identifier

Capability name:	G.722.2 (AMR-WB) audio capability
Capability class:	Audio codec
Capability identifier type:	Standard
Capability identifier value:	{itu-t (0) recommendation (0) g (7) 7222 generic-capabilities (1) 0}
maxBitRate:	Shall be 239
NonCollapsingRaw:	This field shall not be included
transport:	This field shall not be included

Table F.2/G.722.2 – G.722.2 Capability parameter – maxAl-sduFrames

Parameter name:	maxAl-sduFrames
Parameter description:	This is a collapsing GenericParameter. It specifies what is the maximum number of audio frames per AL-SDU.
Parameter identifier value:	0
Parameter status:	Shall be present for capability exchange and logical channel signalling. Shall not be present for mode request.
Parameter type:	UnsignedMin
Supersedes:	–

Table F.3/G.722.2 – G.722.2 Capability parameter – bitRate

Parameter name:	bitRate
Parameter description:	This is a nonCollapsing GenericParameter. It specifies the AMR bit-rate. This parameter shall be used in mode requests and in mode-set definitions (see Table F.5). 0 = 6.60; 1 = 8.85; 2 = 12.65; 3 = 14.25; 4 = 15.85; 5 =18.25; 6 = 19.85; 7 = 23.05; 8 = 23.85
Parameter identifier value:	1
Parameter status:	Optional
Parameter type:	UnsignedMin
Supersedes:	–

Table F.4/G.722.2 – G.722.2 Capability parameter – octet align

Parameter name:	octetAlign
Parameter description:	This is a collapsing GenericParameter. It specifies whether the bandwidth efficient or octet-aligned mode of operation is used. If parameter is present and the value is TRUE, octet-aligned mode is used, otherwise the bandwidth efficient mode is used.
Parameter identifier value:	2
Parameter status:	Optional
Parameter type:	Logical
Supersedes:	–

Table F.5/G.722.2 – G.722.2 Capability parameter – mode-set

Parameter name:	modeSet
Parameter description:	This is a collapsing GenericParameter. If present, it specifies the set of modes available for current session. If not present, all modes are available.
Parameter identifier value:	3
Parameter status:	Optional
Parameter type:	genericParameter. Parameter values (SET OF unsignedMin) indicate the G.722.2 modes (see Table F.3) supported for current session.
Supersedes:	–

Table F.6/G.722.2 – G.722.2 Capability parameter – mode change period

Parameter name:	modeChangePeriod
Parameter description:	This is a collapsing GenericParameter. If present, it specifies the interval N (as number of frames) at which the mode changes are allowed. The initial phase is arbitrary, but the mode changes must be separated by the multiple of N frames. If not present, mode changes are allowed at any time.
Parameter identifier value:	4
Parameter status:	Optional
Parameter type:	UnsignedMin
Supersedes:	–

Table F.7/G.722.2 – G.722.2 Capability parameter – mode change neighbour

Parameter name:	modeChangeNeighbour
Parameter description:	This is a collapsing GenericParameter. If present and the value is TRUE, it specifies that the mode may be changed to a neighbouring mode within the specified mode-set. If not present or the value is FALSE, mode changes are allowed to any mode within the specified mode-set.
Parameter identifier value:	5
Parameter status:	Optional
Parameter type:	Logical
Supersedes:	–

Table F.8/G.722.2 – G.722.2 Capability parameter – crc

Parameter name:	crc
Parameter description:	This is a collapsing GenericParameter. If present and the value is TRUE, it specifies that frame CRCs are included in the payload packet. If not present or the value is FALSE, CRCs are not included. Note that enabling CRC also implies usage of octet-aligned mode of operation.
Parameter identifier value:	6
Parameter status:	Optional
Parameter type:	Logical
Supersedes:	–

Table F.9/G.722.2 – G.722.2 Capability parameter – robust sorting

Parameter name:	robustSorting
Parameter description:	This is a collapsing GenericParameter. If present and the value is TRUE, it specifies that the robust sorting is applied on the frames carried in the payload. If not present or the value is FALSE, simple payload sorting is used. Note that enabling robust sorting also implies usage of octet-aligned mode of operation.
Parameter identifier value:	7
Parameter status:	Optional
Parameter type:	Logical
Supersedes:	–

Table F.10/G.722.2 – G.722.2 Capability parameter – interleaving

Parameter name:	interleaving
Parameter description:	This is a collapsing GenericParameter. If present, it specifies that frame level interleaving shall be applied for the payloads of this session, and the value specifies the maximum number of frames in an interleaving group. If not present, frames in the payload are not interleaved. Note that enabling interleaving also implies usage of octet-aligned mode of operation.
Parameter identifier value:	8
Parameter status:	Optional
Parameter type:	UnsignedMin
Supersedes:	–

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