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Universal Mobile Telecommunications System (UMTS);
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Speech codec speech processing functions;
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ANSI-C code
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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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1 Scope

The present document contains an electronic copy of the ANSI-C code for the Floating-point Adaptive Multi-Rate Wideband codec. This floating-point codec specification is mainly targeted to be used in multimedia applications or in packet-based applications. The bit-exact fixed-point ANSI-C code in 3GPP TS 26.173 remains the preferred implementation for all applications, but the floating-point codec may be used instead of the fixed-point codec when the implementation platform is better suited for a floating-point implementation. It has been verified that the fixed-point and floating-point codecs interoperate with each other without any artifacts.

The floating-point ANSI-C code in the present document is the only standard conforming non-bit-exact implementation of the Adaptive Multi-Rate Wideband speech transcoder (3GPP TS 26.190 [2]), Voice Activity Detection (3GPP TS 26.194 [6]), comfort noise generation (3GPP TS 26.192 [4]), and source controlled rate operation (3GPP TS 26.193 [5]). The floating-point code also contains example solutions for substituting and muting of lost frames (3GPP TS 26.191 [3]).

The fixed-point specification in 26.173 shall remain the only allowed implementation for the 3G AMR-WB speech service and the use of the floating-point codec is strictly limited to other services.

The floating-point encoder in the present document is a non-bit-exact implementation of the fixed-point encoder producing quality indistinguishable from that of the fixed-point encoder. The decoder in the present document is functionally a bit-exact implementation of the fixed-point decoder, but the code has been optimized for speed and the standard fixed-point libraries are not used as such.

2 References

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- [1] 3GPP TS 26.174: "AMR speech codec, wideband; Test sequences".
- [2] 3GPP TS 26.190: "Mandatory Speech Codec speech processing functions AMR Wideband speech codec; Transcoding functions".
- [3] 3GPP TS 26.191: "AMR speech codec, wideband; Error concealment of lost frames".
- [4] 3GPP TS 26.192: "Mandatory Speech Codec speech processing functions AMR Wideband Speech Codec; Comfort noise aspects".
- [5] 3GPP TS 26.193: "AMR speech codec, wideband; Source controlled rate operation".
- [6] 3GPP TS 26.194: "Mandatory Speech Codec speech processing functions AMR Wideband speech codec; Voice Activity Detector (VAD)".
- [7] RFC 3267 "A Real-Time Transport Protocol (RTP) Payload Format and File Storage Format for Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs, June 2002.