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Foreword

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1 Scope

The present document specifies the digital test sequences for the Enhanced Voice Services (EVS) Codec. These sequences are used in conformance testing for implementations of the EVS Codec (3GPP TS 26.445), Voice Activity Detection (VAD) (3GPP TS.26.451), Comfort Noise Generation (3GPP TS 26.449), Discontinuous Transmission (DTX) (3GPP TS 26.450), Error Concealment of Lost Packets (3GPP TS 26.447), Jitter Buffer Management (JBM) (3GPP TS 26.448), and AMR-WB Interoperable Function (3GPP TS 26.446). In addition, the present document specifies procedures for conformance testing.

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.
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- 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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 26.445: "Codec for Enhanced Voice Services (EVS); Detailed Algorithmic Description".

[3] 3GPP TS 26.451: "Codec for Enhanced Voice Services (EVS); Voice Activity Detection (VAD)".

[4] 3GPP TS 26.449: "Codec for Enhanced Voice Services (EVS); Comfort Noise Generation (CNG) Aspects".

[5] 3GPP TS 26.450: "Codec for Enhanced Voice Services (EVS); Discontinuous Transmission (DTX)".

[6] 3GPP TS 26.447: "Codec for Enhanced Voice Services (EVS); Error Concealment of Lost Packets".

[7] 3GPP TS 26.442: " Codec for Enhanced Voice Services (EVS); ANSI C code (fixed-point)".

[8] 3GPP TS 26.443: "Codec for Enhanced Voice Services (EVS); ANSI C code (floating-point)".

[9] 3GPP TS 26.174: "Adaptive Multi-Rate - Wideband (AMR-WB) Speech Codec Test Sequences".

[10] 3GPP TS 26.446: "Codec for Enhanced Voice Services (EVS); AMR-WB Backward Compatible Functions".

[11] 3GPP TS 26. 448: "Codec for Enhanced Voice Services (EVS); Jitter Buffer Management".

[12] 3GPP TS 26.452: "Codec for Enhanced Voice Services (EVS); ANSI C code; Alternative fixed-point using updated basic operators".

[13] 3GPP TS 26.406: "General audio codec audio processing functions; Enhanced aacPlus general audio codec; Conformance testing".

[14] 3GPP TS 26.274: "Audio codec processing functions; Extended Adaptive Multi-Rate - Wideband (AMR-WB+) speech codec; Conformance testing".

[15] 3GPP TS 26.952: "Codec for Enhanced Voice Services (EVS); Performance Characterization".

[16] ITU-T Recommendation P.863 (03/2018): "Perceptual objective listening quality assessment".

[17] ITU-T Recommendation P.501 (03/2017): "Test signals for use in telephonometry".

[18] ITU-R Recommendation BS.1387-1 (11/2001): "Method for objective measurements of perceived audio quality".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 26.445 [2], 3GPP TS 26.451 [3], 3GPP TS 26.449 [4], 3GPP TS 26.450 [5], 3GPP TS 26.447 [6], 3GPP TS 26.448 [11], and 3GPP TS 26.446 [10] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

ACELP	Algebraic Code-Excited Linear Prediction
AMR-WB	Adaptive Multi Rate Wideband (codec)
CNG	Comfort Noise Generator
DTX	Discontinuous Transmission
EVS	Enhanced Voice Services
FB	Fullband
FEC	Frame Erasure Concealment
IP	Internet Protocol
JBM	Jitter Buffer Management
MSB	Most Significant Bit
MTSI	Multimedia Telephony Service for IMS
NB	Narrowband
PS	Packet Switched
PSTN	Public Switched Telephone Network
SAD	Sound Activity Detection
SC-VBR	Source Controlled - Variable Bit Rate
SID	Silence Insertion Descriptor
SWB	Super Wideband
VAD	Voice Activity Detection
WB	Wideband
WMOPS	Weighted Millions of Operations Per Second

4 General

4.1 Introduction

This specification provides digital test sequences which are necessary to test conformance for an implementation of the EVS codec (TS 26.445 [2]), Voice Activity Detection (TS 26.451 [3]), Comfort Noise Generation (TS 26.449 [4]), Discontinuous Transmission (TS 26.450 [5]), Concealment of Lost Packets (3GPP TS 26.447 [6]), Jitter Buffer Management (JBM) (3GPP TS 26.448 [11]) and AMR-WB Interoperable Function (3GPP TS 26.446 [10]), and for the testing of conformance for implementations of the ANSI C code in TS 26.442 [7], TS 26.443 [8] and TS 26.452 [12].

A standard compliant implementation of the above specifications shall pass conformance tests according to clause 7. The necessary test sequences can be found in the corresponding ZIP files according to the attached Readme.txt file.

Clause 5 describes the format of the files, which contain the digital test sequences. Clause 6 describes the test sequences for the EVS codec, including error concealment of lost packets, the AMR-WB interoperable function. the VAD, comfort noise generation, discontinuous transmission, the AMR-WB interoperable function, the EVS jitter buffer management, Clause 7 describes the conformance testing for implementations of the EVS codec.