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Technical Specification

**Universal Mobile Telecommunications System (UMTS);
LTE;
Speech Enabled Services (SES);
Distributed Speech Recognition (DSR)
extended advanced front-end test sequences
(3GPP TS 26.177 version 10.0.0 Release 10)**



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Foreword

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Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document specifies the digital test sequences for the DSR Extended Advanced Front-end speech codec. These sequences can be used to test for a bit exact implementation of the DSR Advanced Front-end codec and quantization (3GPP TS 26.243).

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] 3GPP TS 26.243: "ANSI-C code for the Fixed-Point Distributed Speech Recognition Extended Advanced Front-end".
- [2] ETSI ES 202 050: "Speech Processing, Transmission and Quality Aspects (STQ); Distributed speech recognition; Advanced front-end feature extraction algorithm; Compression algorithms DSR advanced front end."
- [3] ETSI ES 202 212: "Speech Processing, Transmission and Quality Aspects (STQ); Distributed speech recognition; Extended advanced front-end feature extraction algorithm; Compression algorithms; Back-end speech reconstruction algorithm".
- [4] 3GPP TS 26.074: 'AMR speech codec test sequences'
- [5] 3GPP TS 26.174: 'Adaptive Multi-Rate (AMR) Wideband speech codec test sequences'

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|--------|---|
| AFE | Advanced Front-end |
| AMR | Adaptive Multi-Rate |
| AMR-NB | AMR Narrowband |
| AMR-WB | AMR Wideband |
| DSR | Distributed Speech Recognition |
| ETSI | European Telecommunications Standards Institute |
| GSM | Global System for Mobile communications |
| SES | Speech Enabled Services |
| VAD | Voice Activity Detector |
| X-AFE | eXtended Advanced Front-end |

4 General

Digital test sequences are provided to test for a bit exact implementation of the Distributed Speech Recognition Extended Advanced Front-end (3GPP TS 26.243 [1]).

The test sequences may also be used to verify installations of the ANSI C code in 3GPP TS 26.243 [1].

Clause 5 describes the format of the files, which contain the digital test sequences.

5 Test sequence format

This clause provides information on the format of the digital test sequences for the DSR Extended Advanced Front-end (TS 26.243 [1]).

5.1 File format

The test sequence files in PC (little-endian) byte order are provided in archive files (ZIP format), which accompany the present document.

Following decompression, three types of file are provided:

- *.inp - Input to the speech encoder.
- *.cep – Cepstral output of the encoder, input to the quantizer.
- *.pitch – Pitch output of the encoder, input to the quantizer.
- *.class – Class output of the encoder, input to the quantizer.
- *.vad – VAD output of the encoder, input to the quantizer.
- *.bs – Output of the quantizer

Two test scripts are provided for exercising the Extended Advanced Front-end and quantizer functions.

All file formats are described in 3GPP TS 26.243 [1].

6 DSR test sequences

Forty-three encoder input sequences are provided, 22 with 8kHz sampling, 23 with 16kHz sampling.

8kHz sampling:

T00.INP - T21.INP as described in the AMR test sequences document TS 26.074 [4].

16kHz sampling:

T00.INP - T22.INP as described in the AMR WB test sequences document TS 26.174 [5].

Annex A (informative): Change history

| Change history | | | | | | | |
|----------------|---------|-----------|----|-----|------------------------|-------|--------|
| Date | TSG SA# | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
| 12-2004 | 26 | SP-040833 | | | Approved at TSG SA#26 | 1.0.0 | 6.0.0 |
| 06-2007 | 36 | | | | Version for Release 7 | 6.0.0 | 7.0.0 |
| 12-2008 | 42 | | | | Version for Release 8 | 7.0.0 | 8.0.0 |
| 12-2009 | 46 | | | | Version for Release 9 | 8.0.0 | 9.0.0 |
| 03-2011 | 51 | | | | Version for Release 10 | 9.0.0 | 10.0.0 |

History

| Document history | | |
|-------------------------|------------|-------------|
| V10.0.0 | April 2011 | Publication |
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