



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Mandatory speech CODEC speech processing functions;
AMR speech Codec;
General description
(3GPP TS 26.071 version 14.0.0 Release 14)**



Reference

RTS/TSGS-0426071ve00

Keywords

GSM,LTE,UMTS

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

Important notice

The present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:
<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2017.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	6
3.1 Abbreviations	6
4 General	6
5 Adaptive Multi-Rate speech codec transcoding functions	8
6 Adaptive Multi-Rate speech codec ANSI C-code.....	8
7 Adaptive Multi-Rate speech codec test vectors.....	8
8 Adaptive Multi-Rate speech codec source controlled rate operation	9
9 Adaptive Multi-Rate speech codec voice activity detection	9
10 Adaptive Multi-Rate speech codec comfort noise insertion.....	10
11 Adaptive Multi-Rate speech codec error concealment of lost frames.....	10
12 Adaptive Multi-Rate speech codec frame structure	10
13 Adaptive Multi-Rate speech codec interface to RAN	10
14 Adaptive Multi-Rate speech codec performance characterisation	11
Annex A (informative): Change history	12
History	13

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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 is an introduction to the speech processing parts of the narrowband telephony speech service employing the Adaptive Multi-Rate (AMR) speech coder. A general overview of the speech processing functions is given, with reference to the documents where each function is specified in detail.

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] GSM 03.50: "Digital cellular telecommunications system (Phase 2); Transmission planning aspects of the speech service in the GSM Public Land Mobile Network (PLMN) system".
- [2] 3GPP TS 26.090: "Transcoding functions".
- [3] 3GPP TS 26.073: "Adaptive Multi-Rate (AMR); ANSI C source code".
- [4] 3GPP TS 26.074: "Adaptive Multi-Rate (AMR); Test sequences".
- [5] 3GPP TS 26.093: "Source Controlled Rate operation".
- [6] 3GPP TS 26.094: "AMR Speech Codec; Voice Activity Detector".
- [7] 3GPP TS 26.092: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Comfort noise aspects".
- [8] 3GPP TS 26.091: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Error concealment of lost frames".
- [9] 3GPP TS 26.101: "Frame Structure".
- [10] 3GPP TS 26.102: "AMR Speech Codec; Interface to Iu and Uu".
- [11] 3GPP TS 26.901: "AMR wideband speech codec feasibility study report".
- [12] ITU-T Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".
- [13] ITU-T Recommendation H.324: "Terminal for low bit-rate multimedia communication".