Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
Codec for Circuit switched Multimedia Telephony Service;
Modifications to H.324
(3GPP TS 26.111 version 5.1.0 Release 5)
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Foreword

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Foreword

This Technical Specification (TS) 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.

Introduction

In the present document is described additions, deletions, and changes made to ITU-T Recommendation H.324 [10] with annex C for the purpose of using that recommendation as a basis for the technical specification for circuit switched multimedia service in 3GPP networks. The present document does not address call setup procedures, but references to the specifications which cover call setup are found in 3GPP TS 26.110 [11].
1 Scope

In ITU-T Recommendation H.324 [10] with annex C describes a generic multimedia codec for use in error-prone, wireless networks. The scope of the present document are the changes, deletions, and additions to those texts necessary to fully specify a multimedia codec for use in 3GPP networks. Note that this implicitly excludes the network interface and call setup procedures. Also excluded are any general introductions to the system components.

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.


[7] ITU-T Recommendation G.723.1: "Dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3 kbit/s".


[9] ITU-T Recommendation H.261: "Video CODEC for audiovisual services at px64 kbit/s".


[16] 3GPP TS 26.090: "Transcoding functions".
3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**H.324**: ITU-T H.324 [10] with annex C

**3G-324M terminal**: based on ITU-T H.324 [10] recommendation modified by 3GPP for purposes of 3GPP circuit switched network based video telephony

3.2 Abbreviations

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

- RVLC: Reverse Variable Length Code
- DP: Data Partitioning
- RM: Resynchronization Marker
- MCU: Multipoint Control Unit

4 General


5 Document structure

The structure of H.324 [10] is followed in the present document. Where there are no differences in a specific section, that section is skipped. Where differences are minor, only the differences are described. Where major differences exist, the section is rewritten in the present document. It is important to note that for wireless terminals, Annex C of H.324 [10] supersedes respective portions of the main body of H.324 [10]. For the present document, these modifications are treated as if they are part of the main body of H.324 [10]. Therefore, a reader must keep in mind both the main body and Annex C of H.324 [10] when reading the present document.

6 Functional requirements

6.1 Required elements


3G-324M terminals offering audio communication shall support the AMR audio codec. Support for G.723.1 [7] is not mandatory, but recommended.


3G-324M terminals shall support H.223 [1] with annex A and annex B.

3G-324M terminals shall support at least 32 kbit/s minimum bit rate at the mux to wireless network interface.
6.2 Information streams

V.25ter discussion does not apply.

6.3 Modem

Does not apply.

6.4 Multiplex


6.5 Control channel

No differences with H.324 [10].

Should it not be possible to signal an element of the 3G-324M terminal using a published version of H.245 [6], a procedure will be defined here.

6.6 Video channels


Support for MPEG-4 Visual is optional. When supported, MPEG-4 Visual codecs shall support Simple Profile @ Level 0. The FLC code 0000 1000 in Table G-1 – "FLC table for profile_and_level_indication" in ISO/IEC 14496-2 [14] is assigned to it. Additional information can be found in [14].

MPEG-4 Visual Simple Profile @ level 0 provides error concealment as part of the simple profile through Data Partitioning (DP), Reversible Variable Length Coding (RVLC), Resynchronization Marker (RM) and header extension code. MPEG-4 Visual is baseline compatible with H.263 [8].

When opening a logical channel for MPEG-4 Visual, configuration information (Visual Object Sequence Header, Visual Object Header, and Video Object Layer Header) shall be sent in the decoderConfigurationInformation parameter. The same information shall also be sent in the MPEG-4 video bitstream. If the operational mode of MPEG-4 Visual encoder needs to be changed, the existing MPEG-4 video logical channel shall be closed and H.245 [6] procedures for opening a new MPEG-4 video logical channel shall be started. The new operational mode shall be indicated in the parameters of the new logical channel.

6.6.1 MPEG-4 interface to multiplex

As H.263 [8] encoders align picture start codes with the start of an AL-SDU, the same concept applies to MPEG-4 encoders. The following are the requirements of the MPEG-4 interface to the H.223 [1] multiplex.

a) Each 3G-324M MPEG-4 encoder shall align each visual_object_sequence_start_code with the start of an AL-SDU.

b) Each 3G-324M MPEG-4 encoder shall align each group_of_vop_start_code (the beginning of a GOV field) with the start of an AL-SDU unless the GOV field immediately follows configuration information.

c) Each 3G-324M MPEG-4 encoder shall align each vop_start_code with the start of an AL-SDU unless the vop_start_code immediately follows configuration information or a GOV field.

In these requirements, GOV stands for Group_of_VideoObjectPlane() and Configuration information consists of Visual Object Sequence Header, Visual Object Header, and Video Object Layer Header.
6.7 Audio channels
AMR is the mandatory speech codec. Support for G.723.1 [7] is not mandatory, but recommended. If both the receiving and transmitting terminals support AMR and G.723.1 [7], then AMR shall be used. This applies to connections without a Multipoint Control Unit (MCU).

6.8 Data channels
No differences with H.324 [10].

7 Terminal procedures

8 Optional enhancements
No differences with H.324 [10].

9 Interoperation with other terminals
For further study.

10 Multipoint considerations
For further study.

11 Maintenance
No differences with H.324 [10].
Annex A (informative):
Change History

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