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**TECHNICAL SPECIFICATION**

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# Contents

# Foreword

This Technical Specification has been produced by the 3$^{rd}$ 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 specification;

The 3GPP Multimedia messaging service (MMS) specification consists of three 3GPP TSs; 3GPP TS 22.140, 3GPP TS 23.140 and the present document. The TS 3GPP TS 22.140 [22]provides a set of requirements which shall be supported for the provision of non real-time multimedia messaging service, seen primarily from the subscriber's and service providers' points of view. The TS 23.140 [23] identifies the functional capabilities and information flows needed to support the MMS. The present document provides the details of media types, formats and codecs used by the MMSservice

The issue of codecs ad for MMS services has been addressed initially in TS 23.140, owned by the 3GPP T2 group. During the TSG-T WG2 group meeting in Edinburgh in September 2001, the TSG-T WG2 group sent a Liaison statement (S4-AHP040) to the 3GPP SA WG4 group, requesting that the responsibility for the specification of codecs and formats to be used in MMS services is transferred to SA WG4 group starting with Release 5.

After the SA WG4 group agreed to take over this responsibility, and the present document is the result of such commitment on Release 6.

For the sake of interoperability and alignment it is important there is no contradiction between the recommendations made in the present document and in the 26.234 specification [14].

# 1 Scope

The present document specifies the media types, formats and codecs for the MMS within the 3GPP system. The scope of the present document extends to codecs for speech, audio, video, still images, bitmap graphics, and other media in general, as well as scene description, multimedia integration and synchronization schemes.

# 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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2]     The Unicode Consortium: "The Unicode Standard", Version 2.0, Addison-Wesley Developers Press, 1996.URL: http://www.unicode.org/.

[3]     ANSI X3.4, 1986: "Information Systems; Coded Character Set 7 Bit; American National Standard Code for Information Interchange".

[4]     ISO/IEC 8859-1:1998: "Information technology; 8-bit single-byte coded graphic character sets; Part 1: Latin alphabet No. 1".

[5]     IETF; RFC 2279: "UTF-8, A Transformation format of ISO 10646", URL: http://www.ietf.org/rfc/rfc2279.txt.

[6]     3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[7]     3GPP TS 26.090: "AMR speech Codec Transcoding functions".

[8]     ITU-T Recommendation T.81: "Information technology; Digital compression and coding of continuous-tone still images: Requirements and guidelines".

[9]     "JPEG File Interchange Format", Version 1.02, September 1, 1992.

[10]     ITU-T Recommendation H.263 (02/98): "Video coding for low bit rate communication".

[11]     ITU-T Recommendation H.263 – Annex X (03/04): "Annex X: Profiles and levels definition".

[12]     ISO/IEC 14496-2 (2004): "Information technology - Coding of audio-visual objects - Part 2: Visual".

[13]     (void).

[14]     3GPP TS 26.234: "End-to-end transparent streaming Service; Protocols and codecs".

[15]     CompuServe Incorporated: "GIF Graphics Interchange Format: A Standard defining a mechanism for the storage and transmission of raster-based graphics information", Columbus, OH, USA, 1987.

[16]     Compuserve Incorporated, Columbus, Ohio (1990): "Graphics Interchange Format (Version 89a)".

[17]     IETF RFC 2083: "PNG (Portable Networks Graphics) Specification version 1.0 ", T. Boutell, et. al., March 1997.

[18]          ITU-T Recommendation H.263 (1998): "Video coding for low bit rate communication - Annex X, Profiles and Levels Definition".

[19]          ISO/IEC 14496-3:2001, "Information technology -- Coding of audio-visual objects -- Part 3: Audio".

[20]          W3C Last Call Working Draft: "Scalable Vector Graphics (SVG) 1.2", http://www.w3.org/TR/2004/WD-SVG12-20041027/, October 2004.

[21]          W3C Last Call Working Draft: "Mobile SVG Profile: SVG Tiny, Version 1.2", http://www.w3.org/TR/2004/WD-SVGMobile12-20040813/, August 2004.

[22]          3GPP 22.140: "Service Aspects; Stage 1; Multimedia Messaging Service".

[23]          3GPP 23.140: "Multimedia Messaging Service (MMS); Functional Description; Stage 2".

[24]          W3C Recommendation: "Synchronized Multimedia Integration Language (SMIL 2.0)", http://www.w3.org/TR/2001/REC-smil20-20010807/, August 2001.

[25]          IETF RFC 2046: "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types".

[26]          3GPP TS 26.071: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; General description".

[27]          3GPP TS 26.171: "Speech codec speech processing functions; Adaptive Multi-Rate - Wideband (AMR-WB) speech codec; General description".

[28]          Scalable Polyphony MIDI Specification Version 1.0, RP-34, MIDI Manufacturers Association, Los Angeles, CA, February 2002.

[29]          Scalable Polyphony MIDI Device 5-to-24 Note Profile for 3GPP, RP-35, MIDI Manufacturers Association, Los Angeles, CA, February 2002.

[30]          WAP Forum Specification: "XHTML Mobile Profile", http://www1.wapforum.org/tech/terms.asp?doc=WAP-277-XHTMLMP-20011029-a.pdf, October 2001.

[31]          "Standard MIDI Files 1.0", RP-001, in "The Complete MIDI 1.0 Detailed Specification, Document Version 96.1" The MIDI Manufacturers Association, Los Angeles, CA, USA, February 1996.

[32]          IETF RFC 3267: "RTP payload format and file storage format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) audio codecs ", March 2002.

[33]          3GPP TS 26.244: "Transparent end-to-end packet switched streaming service (PSS); 3GPP file format (3GP)"

[34]          3GPP TS 26.246: "Transparent end-to-end packet switched streaming service (PSS); 3GPP SMIL Language Profile".

[35]          3GPP TS 26.245: "Transparent end-to-end packet switched streaming service (PSS); Timed text format"

[36]          IETF RFC 1952 "GZIP file format specification version 4.3", Deutsch P, May 1996.

[37]          (void)

[38]          Mobile DLS, MMA specification v1.0. RP-41 Los Angeles, CA, USA. 2004.

[39]          Mobile XMF Content Format Specification, MMA specification v1.0., RP-42, Los Angeles, CA, USA. 2004.

[40]          3GPP TS 26.090: "Mandatory Speech Codec speech processing functions; Adaptive Multi-Rate (AMR) speech codec; Transcoding functions".

[41]          3GPP TS 26.073: "ANSI-C code for the Adaptive Multi Rate (AMR) speech codec".

[42]          3GPP TS 26.104: "ANSI-C code for the floating-point Adaptive Multi Rate (AMR) speech codec".

[43] 3GPP TS 26.190: "Speech Codec speech processing functions; AMR Wideband speech codec; Transcoding functions".

[44] 3GPP TS 26.173: "ANCI-C code for the Adaptive Multi Rate - Wideband (AMR-WB) speech codec".

[45] 3GPP TS 26.204: "ANSI-C code for the Floating-point Adaptive Multi-Rate Wideband (AMR-WB) speech codec".

[46] 3GPP TS 26.290: "Extended AMR Wideband codec; Transcoding functions".

[47] 3GPP TS 26.304: "ANSI-C code for the Floating-point; Extended AMR Wideband codec".

[48] 3GPP TS 26.273: "ANSI-C code for the Fixed-point; Extended AMR Wideband codec".

[49] 3GPP TS 26.401: "General audio codec audio processing functions; Enhanced aacPlus general audio codec; General description".

[50] 3GPP TS 26.410: "General audio codec audio processing functions; Enhanced aacPlus general audio codec; Floating-point ANSI-C code".

[51] 3GPP TS 26.411: "General audio codec audio processing functions; Enhanced aacPlus general audio codec; Fixed-point ANSI-C code".

[52] ITU-T Recommendation H.264 (04/2013): "Advanced video coding for generic audiovisual services".

[53] (void)

[54] "Exchangeable image file format for digital still cameras: EXIF 2.2", Specification by the Japan Electronics and Information Technology Industries Association (JEITA), April 2002, URL: http://www.exif.org/

[55] Standard ECMA-327: "ECMAScript 3rd Edition Compact Profile", June 2001.

[56] "Digital Rights Management", Open Mobile AllianceTM, OMA-Download-DRM-v1_0, http://www.openmobilealliance.org/

[57] "DRM Rights Expression Language", Open Mobile AllianceTM, OMA-Download-DRMREL-v1_0, http://www.openmobilealliance.org/

[58] "DRM Content Format", Open Mobile AllianceTM, OMA-Download-DRMCF-v1_0, http://www.openmobilealliance.org/

[59] "vObject Minimum Interoperability Profile", Open Mobile AllianceTM, OMA-TS-vObjectOMAProfile-V1_0, http://www.openmobilealliance.org/

[60] 3GPP TR 26.936: "Performance characterization of 3GPP audio codecs".

[61] (void)

[62] ITU-T Recommendation H.265 (04/2013): "High efficiency video coding".

[63] 3GPP TS 26.307 "Presentation Layer for 3GPP Services".

# 3    Definitions and abbreviations

## 3.1    Definitions

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

**continuous media:** media with an inherent notion of time, in the present document speech, audio and video

**discrete media:** media that itself does not contain an element of time, in the present document all media not defined as continuous media

**scene description:** description of the spatial layout and temporal behaviour of a presentation, it can also contain hyperlinks

## 3.2    Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply:

| | |
|---|---|
| 3GP | 3GPP file format |
| AAC | Advanced Audio Coding |
| AVC | Advanced Video Coding |
| CC/PP | Composite Capability/Preference Profiles |
| CPB | Coding Picture Buffer |
| DIMS | Dynamic and Interactive Multimedia Scene |
| DLS | Downloadable Sounds |
| DRM | Digital Rights Management |
| Enhanced aacPlus | MPEG-4 High Efficiency AAC plus MPEG-4 Parametric Stereo |
| EXIF | Exchangeable image file format |
| GIF | Graphics Interchange Format |
| H.263 | ITU-T video codec |
| HDTV | High-definition television |
| HEVC | High Efficiency Video Coding |
| ITU-T | International Telecommunications Union - Telecommunications |
| JFIF | JPEG File Interchange Format |
| JPEG | Joint Picture Expert Group |
| MIDI | Musical Instrument Digital Interface |
| MIME | Multipurpose Internet Mail Extensions |
| MM | Multimedia Message |
| MMS | Multimedia Messaging Service |
| MPEG | Motion Picture Expert Group |
| MP4 | MPEG-4 file format |
| PIM | Personal Information Manager |
| PSS | Packet-switched Streaming Service |
| SBR | Spectral Band Replication |
| SP-MIDI | Scalable Polyphony MIDI |
| SVG | Scalable Vector Graphics |
| UTF-8 | Unicode Transformation Format (the 8-bit form) |
| VCL | Video Coding Layer |
| XMF | Extensible Music Format |

# 4    Media formats

Multiple media elements shall be combined into a composite single MM using MIME multipart format as defined in RFC 2046 [25]. The media type of a single MM element shall be identified by its appropriate MIME type whereas the media format shall be indicated by its appropriate MIME subtype.

In order to guarantee a minimum support and compatibility between multimedia messaging capable terminals, MMS User Agent supporting specific media types shall comply with the following selection of media formats:

## 4.1    Text

Plain text. Any character encoding (charset) that contains a subset of the logical characters in Unicode [2] shall be used (e.g. US-ASCII [3], ISO-8859-1 [4], UTF-8 [5], Shift_JIS, etc.).

Unrecognized subtypes of "text" shall be treated as subtype "plain" as long as the MIME implementation knows how to handle the charset. Any other unrecognized subtype and unrecognized charset shall be treated as "application/octet - stream".

Interoperability with SMS text type is according to [23].

## 4.2    Speech

If speech is supported, the AMR codec shall be supported for narrow-band speech [26][40][41][42].

The AMR wideband speech codec [27][43][44][45] shall be supported when wideband speech working at 16 kHz sampling frequency is supported.

When using speech media type alone, AMR or AMR-WB data is stored according to the file format specified in [32].

Multi-channel sessions shall not be used.

## 4.3    Audio

If audio is supported, then one or both of the following two audio codecs should be supported:

- Enhanced aacPlus [49] [50] [51]

- Extended AMR-WB [46] [47] [48]

There is no requirement that a terminal supporting decoding by one of the codecs shall also support encoding by that codec.

Specifically, based on the audio codec selection test results Extended AMR-WB is strong for the scenarios marked with blue, Enhanced aacPlus is strong for the scenarios marked with orange, and both are strong for the scenarios marked with green colour in the table below:

| Content type<br>Bit rate | Music | Speech over Music | Speech between Music | Speech |
|---|---|---|---|---|
| 14 kbps mono | 🟩 | 🟩 | 🟦 | 🟦 |
| 18 kbps stereo | 🟧 | 🟧 | 🟦 | 🟦 |
| 24 kbps stereo | 🟧 | 🟧 | 🟦 | 🟦 |
| 24 kbps mono | 🟧 | 🟧 | 🟧 | 🟦 |
| 32 kbps stereo | 🟧 | 🟧 | 🟧 | 🟧 |
| 48 kbps stereo | 🟧 | 🟧 | 🟧 | 🟧 |

More recent information on the performance of the codecs based on more recent versions of the codecs can be found in TR 26.936 [60].

Enhanced aacPlus decoder is also able to decode MPEG-4 AAC LC content.

Extended AMR-WB decoder is also able to decode AMR-WB content.

In addition, MPEG-4 AAC Low Complexity and MPEG-4 AAC Long Term Prediction object types [19] may be supported. The maximum sampling rate to be supported by the decoder is 48 kHz. The channel configurations to be supported are mono (1/0) and stereo (2/0).

## 4.4     Synthetic audio

If synthetic audio is supported, the Scalable Polyphony MIDI (SP-MIDI) content format defined in Scalable Polyphony MIDI Specification [28] and the device requirements defined in Scalable Polyphony MIDI Device 5-to-24 Note Profile for 3GPP [29] should be supported.

SP-MIDI content is delivered in the structure specified in Standard MIDI Files 1.0 [31], either in format 0 or format 1.

In addition the Mobile DLS instrument format defined in [38] and the Mobile XMF content format defined in [39] should be supported.

A MMS client supporting Mobile DLS shall meet the minimum device requirements defined in [38] in section 1.3 and the requirements for the common part of the synthesizer voice as defined in [29] in sections 1.2.1.2. If Mobile DLS is supported, wavetables encoded with the G.711 A-law codec (wFormatTag value 0x0006, as defined in [38]) shall also be supported.  The optional group of processing blocks as defined in [39] may be supported. Mobile DLS resources are delivered either in the file format defined in [38], or within Mobile XMF as defined in [39]. For Mobile DLS files delivered outside of Mobile XMF, the loading application should unload Mobile DLS instruments so that the sound bank required by the SP-MIDI profile [29] is not persistently altered by temporary loadings of Mobile DLS files.

Content that pairs Mobile DLS and SP-MIDI resources is delivered in the structure specified in Mobile XMF [39]. As defined in [39], a Mobile XMF file shall contain one SP-MIDI SMF file and no more than one Mobile DLS file. MMS clients supporting Mobile XMF must not support any other resource types in the Mobile XMF file. Media handling behaviours for the SP-MIDI SMF and Mobile DLS resources contained within Mobile XMF are defined in [39].

## 4.5     Still Image

If still images are supported, ISO/IEC JPEG [8] together with JFIF [9] shall be supported. The support for ISO/IEC JPEG only apply to the following two modes:

-    mandatory: baseline DCT, non-differential, Huffman coding, as defined in table B.1, symbol 'SOF0' in [8];

-    optional: progressive DCT, non-differential, Huffman coding, as defined in table B.1, symbol 'SOF2' [8].

For JPEG baseline DCT, EXIF compressed image file format should also be supported, as defined in [54]. In that case there is no requirement for the MMS client to interpret or present the EXIF parameters recorded in the file.

## 4.6     Bitmap graphics

If bitmap graphics is supported, the following bitmap graphics formats should be supported:

-    GIF87a [15];

-    GIF89a, [16];

-    PNG, [17].

## 4.7     Video

If video is supported, the following applies:

-    H.263 profile 0 level 45 [10][11] should be supported for compatibility with earlier content and UEs.

-    H.264 (AVC) [52] Constrained Baseline Profile (CBP) Level 1.3 shall be supported.

-    H.264 (AVC) [52] High Profile Level 3.1 with frame_mbs_only_flag=1 should be supported by MMS clients supporting HDTV video content at a resolution of 1280x720 (720p) with progressive scan at 30 frames per second. Maximum VCL Bit Rate shall be constrained to 14Mbps by cpbBrVclFactor & cpbBrNalFactor being fixed to 1000 and 1200 respectively, irrespective of the profile. Note that peak Bit Rate is determined by the CPB size.

- H.265 (HEVC) [62] Main Profile, Main Tier, Level 3.1 decoder should be supported. H.265 (HEVC) Main Profile shall be used with general_progressive_source_flag equal to 1, general_interlaced_source_flag equal to 0, general_non_packed_constraint_flag equal to 1, and general_frame_only_constraint_flag equal to 1.

If stereoscopic 3D video is supported, ITU-T Recommendation H.264 / MPEG-4 (Part 10) AVC [52] Stereo High Profile (SHP) Level 3.1 with frame_mbs_only_flag=1 should be supported. When an H.264 (AVC) SHP sub-bitstream containing the base view only complies with Level 1.3 or below, it should be constrained as follows: the value of the profile_idc should be equal to 66 and the value of the constraint_set1_flag should be equal to 1 in all active sequence parameter sets, i.e. the H.264 (AVC) Constrained Baseline Profile should be indicated to be used for the base view.

> NOTE: When the base view sub-bitstream of the MM complies with H.264 (AVC) CPB Level 1.3 or below, the base view of an MM can be played back by any MMS (Release 11) client supporting video, or the MM can be modified without re-encoding to an MM including 2D video to be played back in H.264 (AVC) CPB compatible MMS clients.

There are no requirements on output timing conformance of H.264 (AVC) decoding (Annex C of [52]) or H.265 (HEVC) decoding (Annex C of [62]).

A video buffer model defined in Annex G of document [14] should be used with H.263. It shall not be used with H.264 (AVC) or H.265 (AVC).

## 4.8 Vector graphics

If 2D vector graphics is supported, Scalable Vector Graphics (SVG) Tiny 1.2 [20][21] and ECMAScript [55] shall be supported.

> NOTE 1: The compression format for SVG content is GZIP [35], in accordance with the SVG specification [20].

> NOTE 2: Only media formats supported by MMS, as specified in clause 4 of this specification, shall be used. MMS clients do not support the Ogg Vorbis format.

> NOTE 3: Content creators of SVG Tiny 1.2 for MMS clients are strongly recommended to follow the content creation guidelines provided for PSS clients in Annex L of [14].

> NOTE 4: If SVG Tiny 1.2 will not be published within a reasonable timeframe, the decision to adopt SVG Tiny 1.2 in favour of SVG Tiny 1.1 may be reconsidered.

## 4.9 File Format for video and associated speech/audio media types

To ensure interoperability for the transport of video and associated speech/audio and timed text in an MM, the 3GPP file format with Basic profile shall be supported.

The usage of the 3GPP file format shall follow the technical specifications and the implementation guidelines specified in TS 26.233 [33]

> NOTE: When using speech media type alone, AMR or AMR-WB data is stored according to the file format specified in [32].

## 4.10 Media synchronization and presentation format

MMS clients and servers that support HTML shall support the 3GPP HTML5 profile as defined in [63]. MMS servers should support translation from other scene description formats, such as SMIL [24] and XHTML Mobile Profile [30] to HTML5. The MMS client that supports HTML shall include the HTML5 MIME type "text/html" as part of the User Agent header field in the request sent to the server.

The MMS Relay/Server shall not accept an MMS message using HTML5 presentation unless it supports HTML5 presentation format and supports transcoding to SMIL 2.0 or XHTML Mobile Profile. For this purpose, the MMS Relay/Server uses the capability negotiation as defined in section 7.1.3.1 of [22] to detect the user agent's capabilities.

All referenced resources should be delivered as part of the same multi-part MIME document, where the HTML5 document shall be the root part.

The 3GPP MMS uses a subset of SMIL 2.0 [24] for media synchronization and scene description. MMS clients and servers with support for media synchronization and scene descriptions shall support the 3GPP SMIL Language Profile defined in [34].

This profile is a subset of the SMIL 2.0 Language Profile but a superset of the SMIL 2.0 Basic Language Profile. Document [34] also includes an informative annex A that provides guidelines for SMIL content authors.

Additionally, XHTML Mobile Profile [30] for scene description should be supported. MMS clients and servers with support for scene descriptions based on XHTML shall support XHTML Mobile Profile [30], defined by the WAP Forum.

XHTML Mobile Profile is a subset of XHTML 1.1 but a superset of XHTML Basic.

# 4.11    Timed text

If timed text is supported, MMS clients shall support [35] with 3GP files using Basic profile [33].

# 4.12    Digital Rights Management

If Rights Management is supported, OMA Digital Rights Management  (DRM) 1.0 [56][57][58] shall be supported.

# 4.13    PIM

If Personal Data Interchange is supported this shall be done according to the OMA vObject Minimum Interoperability Profile [59].

# 4.14    Dynamic and Interactive Multimedia Scene

If dynamic and interactive multimedia scene is supported, MMS clients and servers shall support 3GPP TS 26.142 [61].

# Annex A (informative): Change history

| Change history | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | | Old | New |
| 2002-03 | 15 | SP-020075 | | | Version 2.0.0 presented for approval | | 2.0.0 | 5.0.0 |
| 2002-06 | 16 | SP-020224 | 001 | | Correcting the reference to AMR and AMR-WB RTP payload | | 5.0.0 | 5.1.0 |
| 2002-12 | 18 | SP-020691 | 002 | | Code points for H.263 | | 5.1.0 | 5.2.0 |
| 2002-12 | 18 | SP-020691 | 003 | 1 | File Format name change from MP4 to 3GP | | 5.1.0 | 5.2.0 |
| | | | | | | | | |
| 2004-09 | 25 | SP-040641 | 006 | 2 | Introduction of Extended AMR-WB and Enhanced aacPlus into MMS service | | 5.2.0 | 6.0.0 |
| 2004-09 | 25 | SP-040650 | 007 | 1 | Update of MMS codecs and formats with Release 6 functionality | | 5.2.0 | 6.0.0 |
| 2004-09 | 25 | SP-040655 | 008 | 1 | Update of MMS codecs and formats with H.264 | | 5.2.0 | 6.0.0 |
| 2004-12 | 26 | SP-040838 | 009 | 1 | Support for EXIF in MMS | | 6.0.0 | 6.1.0 |
| 2004-12 | 26 | SP-040838 | 010 | | Adoption of SVG Tiny 1.2 for MMS | | 6.0.0 | 6.1.0 |
| 2005-12 | 27 | SP-050175 | 011 | 2 | Introduction of PIM and DRM | | 6.1.0 | 6.2.0 |
| 2006-03 | 31 | SP-060009 | 0012 | 1 | Addition of a reference to TR 26.936 | | 6.2.0 | 6.3.0 |
| 2006-09 | 33 | SP-060600 | 0013 | | Editorial correction of references | | 6.3.0 | 7.0.0 |
| 2007-06 | 36 | SP-070319 | 0014 | 2 | Inclusion of DIMS in MMS | | 7.0.0 | 7.1.0 |
| 2008-12 | 42 | | | | Version for Release 8 | | 7.1.0 | 8.0.0 |
| 2009-12 | 46 | | | | Version for Release 9 | | 8.0.0 | 9.0.0 |
| 2011-03 | 51 | | | | Version for Release 10 | | 9.0.0 | 10.0.0 |
| 2012-03 | 55 | SP-120026 | 0016 | 4 | On MMS video enhancements | | 10.0.0 | 11.0.0 |
| 2012-09 | 57 | SP-120509 | 0017 | 2 | Inclusion of MVC support for MMS | | 11.0.0 | 11.1.0 |
| 2014-03 | 63 | SP-140009 | 0018 | | HEVC support | | 11.1.0 | 12.0.0 |
| 2015-12 | 70 | SP-150653 | 0019 | 5 | HTML5 as Presentation Layer for MMS | | 12.0.0 | 13.0.0 |

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date | Meeting | TDoc | CR | Rev | Cat | Subject/Comment | New version |
| 2017-03 | 75 | | | | | Version for Release 14 | 14.0.0 |
| 2018-06 | 80 | | | | | Version for Release 15 | 15.0.0 |
| 2020-07 | - | - | - | - | - | Update to Rel-16 version (MCC) | **16.0.0** |

# History

| Document history | | |
|---|---|---|
| V16.0.0 | August 2020 | Publication |
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