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| Technical Specification |
| 3rd Generation Partnership Project;Technical Specification Group Services and System Aspects;IP Multimedia System (IMS) Messaging and Presence;Media formats and codecs (Release 18) |
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# 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:

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x the first digit:

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# Introduction

The 3GPP Technical Specifications TS 22.340 [55] and TS 22.141 [56] define the requirements for the 3GPP IP Multimedia Subsystem (IMS) based messaging and presence services. This Technical Specification takes the requirements into account when defining the minimal baseline and optional media codecs and message container format to be used by IMS Messaging and associated Presence service, when supported.

IMS Messaging services incorporate one or more of the following messaging types Immediate messaging, Deferred delivery messaging, and Session based messaging. With Immediate messaging the sender expects immediate message delivery in what is perceived as real time compared with Deferred messaging where the sender expects the network to deliver the message as soon as the recipient becomes available. With Session based messaging a communications association is established between two or more users before communication can take place. In the simplest form Session based messaging may be a direct communication between two users. This specification defines the media types and container formats for both the Immediate message type and the Session based message type.

The specification provides the ability to have an interoperable baseline set of media types for messaging and presence services, that will simultaneously maximise the technology re-use of the already existing 3GPP services with media types, defined in TS 26.140 [13] and TS 26.511 [67]. Simultaneously, the specification will provide the ability to indicate the IMS system about the complete set of UE media and storage capabilities relevant for the IMS messaging and presence service.

For IMS terminals capable of Combined CS and IMS (CSI) operation [59][60], the specification provides an Annex with guidelines on how to combine IMS media with CS calls.

# 1 Scope

The present document specifies the basic media formats and codecs to be used in the IMS Messaging and Presence services, including CSI. It defines the mandatory 'baseline' set of media types for the services. Additionally, it also targets to allow possible message content type enhancements, either 3GPP-standardized or other generally used media types, in a flexible way.

# 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] GPP 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] (void)

[11] (void)

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

[13] 3GPP TS 26.140: "Multimedia Messaging Service (MMS); Media formats and codecs"

[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] (void)

[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: "AMR 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] void

[53] ISO/IEC 14496-10/FDAM1: "AVC Fidelity Range Extensions".

[54] 3GPP TS 23.228; 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; IP Multimedia Subsystem (IMS); Stage 2.

[55] 3GPP TS 22.340: "Stage 1, IMS Messaging Service".

[56] 3GPP TS 22.141: "Stage 1, Presence Service".

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

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[60] 3GPP TS 23.279: "Combining CS and IMS services; Stage 2".

[61] 3GPP TS 26.235: "Packet switched conversational multimedia applications; Default codecs".

[62] 3GPP TR [26.936](http://www.3gpp.org/ftp/Specs/html-info/26936.htm): "Performance characterization of 3GPP audio codecs".

[63] 3GPP TS [26.114](http://www.3gpp.org/ftp/Specs/html-info/26936.htm): "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

[64] 3GPP TS 26.143: "Messaging Media Profiles".

[65] Khronos glTF 2.0, [glTF™ 2.0 Specification (khronos.org)](https://registry.khronos.org/glTF/specs/2.0/glTF-2.0.html)

[66] ISO/IEC 23090-14 AMD 2, Information technology — Coded representation of immersive media — Part 14: Scene description — Amendment 2: Support for haptics, augmented reality, avatars, Interactivity, MPEG-I audio, and lighting

[67] 3GPP TS 26.511: "5G Media Streaming (5GMS); Profiles, Codecs and Formats".

[68] 3GPP TS 26.117: "5G Media Streaming (5GMS); Speech and audio profiles".

[69] ISO/IEC 23008-12:2019 Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 12: Image File Format

[70] ISO/IEC 23000-22:2019 Information technology — Multimedia application format (MPEG-A) — Part 22: Multi-image application format (MIAF)

[71] ITU-T Recommendation H.265 (02/2018): "High efficiency video coding".

[72] 3GPP TS 26.445 "Codec for Enhanced Voice Services (EVS); Detailed algorithmic description".

[73] 3GPP TS 26.307 "Presentation Layer for 3GPP Services".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

**Deferred delivery messaging**: A type of IMS Messaging service by which the sender expects the network to deliver the message as soon as the recipient becomes available.

**Immediate messaging**: A type of IMS Messaging service by which the sender expects immediate message delivery in (near) real time fashion.

**IMS Messaging services:** A group of services, supported by capabilities of the 3GPP IP Multimedia Subsystem 3GPP TS 22.228 [54], that allows an IMS user to send and receive messages to other users. IMS messaging services comprise of one or more types: Immediate messaging, Session based messaging and Deferred delivery messaging.

**Session based messaging**: A type of IMS Messaging service by which the sender expects immediate message delivery in (near) real time fashion. In addition the sender(s) and the receiver(s) have to join to a messaging session e.g. chat room, before message exchange can take place.

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

**static 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

3GP 3GPP file format

AAC Advanced Audio Coding

AMR Adaptive Multi-rate Codec

AR Augmented Reality

CC/PP Composite Capability/Preference Profiles

CSI Combination of CS and IMS services

DLS Downloadable Sounds

Enhanced aacPlus MPEG-4 High Efficiency AAC plus MPEG-4 Parametric Stereo

EXIF Exchangeable image file format

GIF Graphics Interchange Format

glTF Graphics Library Transmission Format

IP Internet Protocol

IMS IP Multimedia Subsystem

ISOBMFF ISO base media file format

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

MTSI Multimedia Telephony Service for IMS

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)

XMF Extensible Music Format

# 4 Formats for Static Media

## 4.0 Introduction

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

Media Types supported in this specification are provided in Table 4.0-1.

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| **Media Type in TS 26.141** | **Applicable capability(ies) as specified in TS 26.143 [63]** | **Supported Media subtype(s)** | **Definition(s)** |
| **Text** | 26143\_TEXT\_PLAIN26143\_TEXT\_ENC\_PLAIN | text/plain | Clause 4.1 |
| **Speech** | 26143\_AUDIO\_EVS 26143\_AUDIO\_AMR-WB26143\_AUDIO\_AMR[26143\_AUDIO\_IVAS]26143\_AUDIO\_ENC\_EVS 26143\_AUDIO\_ENC\_AMR-WB26143\_AUDIO\_ENC\_AMR[26143\_AUDIO\_ENC\_IVAS] | audio/3gp | Clause 5.1 |
| **Audio** | 26143\_AUDIO\_XHE-AAC 26143\_AUDIO\_EAAC+[26143\_AUDIO\_IVAS]26143\_AUDIO\_ENC\_XHE-AAC 26143\_AUDIO\_ENC\_EAAC+[26143\_AUDIO\_ENC\_IVAS] | Audio/mp4 | Clause 5.2 |
| **Synthetic audio** | n/a | Audio/sp-midi | Clause 4.4 |
| **Still Image** | 26143\_IMG\_ JPEG26143\_IMG\_ENC\_JPEG 26143\_IMG\_HEIC | image/jpegimage/heic | Clause 4.2 |
| **Bitmap graphics** | 26143\_IMG\_GIF26143\_IMG\_PNG | image/gifimage/png | Clause 4.2 |
| **Video** | 26143\_VIDEO\_AVC-HD26143\_VIDEO\_AVC-FullHD26143\_VIDEO\_HEVC-HD26143\_VIDEO\_HEVC-FullHD26143\_VIDEO\_HEVC-UHD | video/mp4 | Clause 5.3 |
| **Vector graphics** | image | image/svg+xml | Clause 5.6 |
| **Media synchronization and presentation format** | 26143\_PRESENTATION\_HTML5 | Text/html | Clause 6 |
| **Subtitles and Text** | 26143\_TT\_3GPP26143\_TT\_IMSC11 | Text/mp4Application/mp4 | Clause 5.7.1 of TS 26.143 |
| **3d scenes and assets** | n/a | model/gltf+jsonmodel/gltf-binary | Clause 5.7 |

In order to guarantee a minimum support and compatibility between IMS Messaging and Presence Service capable terminals and OMA IMPS 1.1 capable terminals, IMS Messaging User Agent and IMS Presence 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".

## 4.2 Still Image and Bitmap graphics

For IMS terminals supporting still images, 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 [58]. In that case there is no requirement for the MMS Messaging and Presence client to interpret or present the EXIF parameters recorded in the file.

If still images are supported, HEIF should be supported which consists in conforming to:

- the 'heic' brand as defined in ISO/IEC 23008-12 [69],

- the 'MiHB' brand as defined in ISO/IEC 23000-22:2019 [70], and

- the contained elementary bitstream conforming to H.265 (HEVC) Main Profile, Main Tier, Level 5.1 [71] bitstreams have 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.

- signalled with image/heic, profile="heic,MiHB" itemTypes="hvc1.1.2.L153.B0" or an equivalently compatible media type as defined in [69].

For IMS terminals, supporting bitmap graphics, the following bitmap graphics formats should be supported:

- GIF87a [15];

- GIF89a [16];

- PNG [17].

# 5 Formats for Continuous Media

In order to guarantee a minimum support and compatibility between IMS Messaging and Presence Service capable terminals and MMS capable terminals that offer support of continuous media formats (section 5) and media synchronisation and scene description (see section 6), IMS Messaging User Agent and IMS Presence User Agent supporting specific media types should in addition to formats listed in section 4 of this document comply with the following selection of media formats:

## 5.1 Speech

NOTE: when Speech is supported, the following requirements imply support for narrow-band, wideband and super wideband operations, in alignment with MTSI TS 26.114 [63].

For IMS terminals supporting Speech, 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 for wideband speech working at 16 kHz sampling frequency.

When using speech media type alone, AMR or AMR-WB data stored according to the file format specified in [32] and EVS data is stored according to the storage specified in Clause A.2.6 of TS 26.445 [72] should be supported. The mandatory format is defined in clause 5.4.

If Speech is supported, then **EVS** decoding capability shall be supported as defined in 3GPP TS 26.117 [68] clause 5.2; and the **EVS** encoding capabilities as defined in clause 5.3 of TS 26.117 [68] and the sender requirements in clause 6.2.4.3 of TS 26.117 [68] shall be supported.

Multi-channel sessions shall not be used when using AMR, AMR-WB and EVS codecs.

If Speech is supported, then **IVAS** decoding capability should be supported as defined in 3GPP TS 26.117 [68] clause 5.2; and the **IVAS**encoding capabilities as defined in clause 5.3 of TS 26.117 [68] and the sender requirements in clause 6.3.5.3 of TS 26.117 [68] should be supported.

NOTE: IVAS codec level setting is TBD.

## 5.2 Audio

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For IMS terminals supporting Audio, **eAAC+** decoding capability shall be supported as defined in 3GPP TS 26.117 [68] clause 5.2 and **eAAC+** encoding capability shall be supported as defined in 3GPP TS 26.117 [68] clause 5.3 and the sender requirements in clause 6.3.2.3 of TS 26.117 [68].

If Audio is supported, then **xHE-AAC stereo** decoding capability should be supported as defined in 3GPP TS 26.117 [68] clause 5.2; and the **xHE-AAC stereo**encoding capabilities as defined in clause 5.3 of TS 26.117 [68] and the sender requirements in clause 6.4.2.3 of TS 26.117 [68] should be supported.

NOTE: xHE-AAC® is a registered trademark of Fraunhofer in Germany and other countries and is used with Fraunhofer’s permission.

If Audio is supported, then **IVAS** decoding capability should be supported as defined in 3GPP TS 26.117 [68] clause 5.2; and the **IVAS**encoding capabilities as defined in clause 5.3 of TS 26.117 [68] and the sender requirements in clause 6.3.5.3 of TS 26.117 [68] should be supported.

NOTE: IVAS codec level setting is TBD.

## 5.3 Video

For IMS terminals supporting Video, the following applies:

- Image ratios of 16:9 and 9:16 shall be supported. Other image formats should be supported.

- the 26143\_VIDEO\_AVC-HD capability as defined in clause 5.6.1 of TS 26.143 [64] shall be supported and the capability 26143\_VIDEO\_ENC\_AVC-HD as defined in clause 5.6.2 of TS 26.143 [64] may be supported.

- the 26143\_VIDEO\_HEVC-HD capability as defined in clause 5.6.1 of TS 26.143 [64] should be supported and the capability 26143\_VIDEO\_ENC\_HEVC-HD as defined in clause 5.6.2 of TS 26.143 [64] may be supported.

If the reception of HD-HDR video is supported by the MMS client, then the following applies:

- the 26143\_VIDEO\_AVC-FullHD capability as defined in clause 5.6.1 of TS 26.143 [64] shall be supported and the capability 26143\_VIDEO\_ENC\_AVC-FullHD as defined in clause 5.6.2 of TS 26.143 [64] may be supported.

- the 26143\_VIDEO\_HEVC-FullHD capability as defined in clause 5.6.1 of TS 26.143 [64] shall be supported and the capability 26143\_VIDEO\_ENC\_HEVC-FullHD as defined in clause 5.6.2 of TS 26.143 [64] shall be supported.

- the 26143\_VIDEO\_HEVC-UHD capability as defined in clause 5.6.1 of TS 26.143 [64] should be supported and the capability 26143\_VIDEO\_ENC\_HEVC-UHD as defined in clause 5.6.2 of TS 26.143 [64] may be supported.

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

To ensure interoperability for the transport of video and associated speech/audio in an IMS Messaging and Presence client, the 3GPP file format with Basic profile shall be supported :

- For the AMR encoded content, the ISO BMFF track shall conform with the requirements of the sample entry 'samr' as defined in TS 26.244 [33].

- For the AMR-WB encoded content, the ISO BMFF track shall conform with the requirements of the sample entry 'sawb' as defined in TS 26.244 [33].

- For the EVS encoded content, the ISO BMFF track shall conform with the requirements of the sample entry 'sevs' as defined in TS 26.244 [33].

- For the EAAC+ encoded content, the ISO BMFF track shall conform with the requirements of the sample entry 'mp4a' as defined in TS 26.244 [33].

- For the xHE-AAC encoded content, the ISO BMFF track shall conform with the requirements of the sample entry 'mp4a' as defined in TS 26.244 [33].

- For video encoded content, the ISO BMFF track shall conform with the requirements corresponding to the capability as indicated in TS 26.143 [64] clause 5.6.

The usage of the 3GPP file format shall follow the technical specifications and the implementation guidelines specified in TS 26.244 [33].

## 5.5 Synthetic audio

For IMS terminals supporting synthetic audio, 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] may 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] may be supported.

A MSS client supporting Mobile DLS may 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 [38] 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]) may also be supported. The optional group of processing blocks as defined in [38] 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].

## 5.6 Vector graphics

For IMS terminals supporting 2D vector graphics, the Scalable Vector Graphics (SVG) Tiny 1.2 format [20][21] and ECMAScript [54] may 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 IMS Messaging and Presence, as specified in clauses 4 and 5 of this specification, shall be used. MMS Messaging and Presence clients do not support the Ogg Vorbis format.

NOTE 3: Content creators of SVG Tiny 1.2 for IMS Messaging and Presence 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.

## 5.7 3D scenes and assets

If 3D scenes and assets are supported, the 26143\_SCENE\_GLTF20 capability and the 26143\_SCENE\_GLTF20\_GLB capability as defined in clause 5.8 of TS 26.143 [64] shall be supported assuming either a single body part or a multipart/related body part as defined in clause 3A.

If 3D scenes including AR assets are supported, the 26143\_SCENE\_GLTF20\_AR and the 26143\_SCENE\_GLTF20\_GLB\_AR capability as defined in clause 5.8 of TS 26.143 [64] shall be supported assuming either a single body part or a multipart/related body part as defined in clause 3A.

# 6 Media synchronisation and presentation format

The 3GPP IMS Messaging and Presence Clients and Servers shall support the 3GPP HTML5 profile as defined in TS 26.307 [73]. 3GPP IMS Messaging and Presence Servers [may/should] support translation from other scene description formats, such as SMIL [24] and XHTML Mobile Profile [30] to HTML5. The 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.

A 3D scene as described in clause 5.7 may be used as the presentation format for the message. In that case, the glTF 2.0 document or the GLB file shall be carried as the first MIME part of the multi-part MIME message.

Annex A (informative):
CSI Handling

# A.1 Introduction

The Combination of CS and IMS services (CSI) is an operation mode combining circuit switch calls and IMS services, where the UE presents the CS and IMS services within one context to the user [59][60]. However, the capabilitiy to simultaneously render certain media types of a CS call and IMS session may be limited by a UE and capability exchange alone may not be enough to resolve such conflicts. For instance:

- During a CS speech call, a UE may not be able to render additional speech accompanying a video clip in an IMS session. This limitation is not clear if the UE has indicated that it is capable of receiving video clips.

- During a CS multimedia call, a UE may not be able to both display video from the CS call and images from the IMS session. Although the UE is not capable to fully render images and video simultaneously, it may be possible to view images in front of video.

The above conflicts are resolved by applying default rules specified in [59]. This Annex describes the UE behaviour for a number of scenarios drawn from the rules in [59]. This list may be extended in future versions of this specification.

Note that the IMS media types and formats applicable to CSI are specified in:

- clauses 6 and 9 of reference [61] for streamed media;

- clauses 4 and 5 of the present document for media delivered in messages.

# A.2 Sharing personal content during CS voice call

In a person-2-person communication, participants can combine a CS voice call with an IMS session and share content such as still images and video. In particular participants may share media content that is (or has been) created by the participants in the session.

TS 22.279 [59] defines that if media, or parts thereof, accepted by a user cannot be rendered by the UE simultaneously with the CS call, conflicts shall be resolved such that the user is presented with CS speech with preference over IMS speech/audio.

# A.3 Sharing personal content during CS multimedia call

In a person-2-person communication, participants can combine a CS multimedia call (3G-324M) with an IMS session and share content such as still images. In particular participants may share media content that is (or has been) created by the participants in the session.

TS 22.279 [59] defines that if media, or parts thereof, accepted by a user cannot be rendered by the UE simultaneously with the CS call, conflicts shall be resolved such that the user is presented with:

- CS speech with preference over IMS speech/audio;

- IMS video and images with preference over CS video.

Annex B (informative):
Change history

| Change history |
| --- |
| TSG SA# | SA Doc. | Spec | CR | Rev | Cat | Subject/Comment | Old | New |
| 26 | SP-040835 | 26.141 |  |  |  | Version 1.0.0 approved at TSG SA#26 | 1.0.0 | 6.0.0 |
| 27 | SP-050098 | 26.141 | 001 | 1 | F | Editorial correction on missing IMS Presence UA | 6.0.0 | 6.1.0 |
| 30 | SP-050789 | 26.141 | 0003 | 2 | F | Adding missing reference numbers | 6.1.0 | 6.2.0 |
| 30 | SP-050790 | 26.141 | 0002 | 5 | B | CSI interoperability of media types and formats | 6.2.0 | 7.0.0 |
| 31 | SP-060009 | 26.141 | 0005 | 1 | A | Addition of a reference to TR 26.936 | 7.0.0 | 7.1.0 |
| 42 |  | 26.141 |  |  |  | Version for Release 8 | 7.1.0 | 8.0.0 |
| 46 |  | 26.141 |  |  |  | Version for Release 9 | 8.0.0 | 9.0.0 |
| 51 |  | 26.141 |  |  |  | Version for Release 10 | 9.0.0 | 10.0.0 |
| 57 |  | 26.141 |  |  |  | Version for Release 11 | 10.0.0 | 11.0.0 |
| 62 | SP-130578 | 26.141 | 0006 |  | D | Clarification of H.264 profile support requirement | 11.0.0 | 12.0.0 |
| 63 | SP-140015 | 26.141 | 0007 | 1 | C | Video Coding Enhancements in IMS Messaging and Presence | 12.0.0 | 12.1.0 |
| 70 |  | 26.141 |  |  |  | Version for Release 13 | 12.1.0 | 13.0.0 |

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| **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** |
| 2022-04 | - | - | - | - | - | Update to Rel-17 version (MCC) | **17.0.0** |
| 2024-03 | SA#103 | SP-240047 | 0011 | 2 | B | CR 26.141-0011r2 Updates to codecs and formats (Rel-18) | **18.0.0** |