**SA4-e (AH) MBS SWG post 126 S4aI230181**

**Online, November 29, 2023**

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| *CR-Form-v12.0* |
| **PSEUDO CHANGE REQUEST** |
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|  | **26**.**143** | **CR** | **pseudo** | **rev** | **-** | **Current version:** | **0.1.1** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | **[PROMISE] Proposed Update to Initial Clauses** |
|  |  |
| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | **PROMISE** |  | ***Date:*** | 29/11/2023 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | 18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Provides updates to existing specifications |
|  |  |
| ***Summary of change:*** |  |
|  |  |
| ***Consequences if not approved:*** |  |
|  |  |
| ***Clauses affected:*** | 2, 3.3, 4.1, 4.2, 4.3, 4.4, 4.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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# 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".

[x1] 3GPP TS 26.441: "Codec for Enhanced Voice Services (EVS); General overview".

[x2] 3GPP TS 26.444: "Codec for Enhanced Voice Services (EVS); Test sequences".

[x3] 3GPP TS 26.445: "Codec for Enhanced Voice Services (EVS); Detailed algorithmic description".

[x4] 3GPP TS 26.447: "Codec for Enhanced Voice Services (EVS); Error concealment of lost packets".

[x5] 3GPP TS 26.451: "Codec for Enhanced Voice Services (EVS); Voice Activity Detection (VAD)".

[x6] 3GPP TS 26.442: "Codec for Enhanced Voice Services (EVS); ANSI C code (fixed-point)".

[x7] 3GPP TS 26.452: "Codec for Enhanced Voice Services (EVS); ANSI C code; Alternative fixed-point using updated basic operators".

[x8] 3GPP TS 26.443: "Codec for Enhanced Voice Services (EVS); ANSI C code (floating-point)".

[x9] 3GPP TS 26.446: "Codec for Enhanced Voice Services (EVS); Adaptive Multi-Rate - Wideband (AMR-WB) backward compatible functions".

[x10] 3GPP TS 26.449: "Codec for Enhanced Voice Services (EVS); Comfort Noise Generation (CNG) aspects".

[x11] 3GPP TS 26.450: "Codec for Enhanced Voice Services (EVS); Discontinuous Transmission (DTX)".

[x13] Khronos glTF 2.0, [glTF™ 2.0 Specification (khronos.org)](https://registry.khronos.org/glTF/specs/2.0/glTF-2.0.html)

[x14] 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

[x15] 3GPP TS 26.511: "5G Media Streaming (5GMS); Profiles, Codecs and Formats".[x16] 3GPP TS 26.117: "5G Media Streaming (5GMS); Speech and audio profiles".

[x17] 3GPP TS 26.250: "Codec for Immersive Voice and Audio Services - General overview"

[x18] 3GPP TS 26.252: "Codec for Immersive Voice and Audio Services - Test sequences"

[x19] 3GPP TS 26.253: "Codec for Immersive Voice and Audio Services - Detailed Algorithmic Description incl. RTP payload format and SDP parameter definitions"

[x20] 3GPP TS 26.254: "Codec for Immersive Voice and Audio Services - Rendering"

[x21] 3GPP TS 26.255: "Codec for Immersive Voice and Audio Services - Error concealment of lost packets"

[x22] 3GPP TS 26.256: "Codec for Immersive Voice and Audio Services - Jitter Buffer Management"

[x23] 3GPP TS 26.251: "Codec for Immersive Voice and Audio Services - C code (fixed-point)"

[x24] 3GPP TS 26.258: "Codec for Immersive Voice and Audio Services; C code (floating-point)"

[x25] IETF RFC 2045, "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", November 1996

[x26] IETF RFC 2046, "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", November 1996

[x27] IETF RFC 2047, "Multipurpose Internet Mail Extensions (MIME) Part Three: Message Header Extensions for Non-ASCII Text", November 1996

[x28] IETF RFC 2048, "Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures", November 1996

[x29] IETF RFC 2049, "Multipurpose Internet Mail Extensions (MIME) Part Five: Conformance Criteria and Examples", November 1996

[x30] IETF RFC 2387, "The MIME Multipart/Related Content-type", August 1998

[x31] IETF draft-ietf-mimi-content-01, "More Instant Messaging Interoperability (MIMI) message content", October 2023

[x32] OMA-TS-MMS-ENC-V1\_3-20080128-C, "Multimedia Messaging Service Encapsulation Protocol", January 2008

[x33] ISO/IEC 23000-24, "Multimedia application format: Messaging media application format"

NOTE: A preliminary draft of this standard is available as MDS23345\_W03\_N1082 here: https://www.mpeg.org/wp-content/uploads/mpeg\_meetings/144\_Hannover/w23345.zip

[x] <doctype> <#>[ ([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

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## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

Abbreviation format (EW)

MIME Multipurpose Internet Mail Extensions

MIMI More Instant Messaging Interoperability

MMBP multimedia messaging body part

MMS Multimedia Messaging Service

OMA Open Mobile Alliance

PDU Protocol Data Unit

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## 4.1 Background and Assumptions

Messaging services typically define a message container. Such a container typically carries one or more body parts with the actual message content (for example, an emoji used in a reaction, a plain text or rich text message or reply, a link, or an inline image, or richer media types).

An important feature of messages are body parts that include media content. Different media content exists, such as simple and rich text text, still images, graphics, speech, audio, video, 3D scenes and many other media types.

This specification is not defining a container format, but it addresses the usability of 3GPP defined media types and formats into messages as part of a *message body* within *message containers*. Examples for message containers are for example OMA MMS PDUs [x32] or MIMI message containers [x31].

isof parts of *message y*:existing functionalities, for example the ones defined in OMA MMS PDUs [x32] or MIMI message containers [x31] may be may be used for this purposeprovidesnMMBP sub-parts The specification relies on ISO/IEC 23000-24.

However, this specification is not restricted to be used with a fully specified Messaging Service, it may as well be used as part of third-party messaging services as message body, or more specifically as MMBP. It may also serve to support content interoperability across different messaging services.

The term *media type* is used as short to refer to the IANA media type, subtype, and parameters as defined in IETF RFC 2046 [x26] and provides defined properties of a *content*. For example, it may tell if the content is video or audio, it provides the encapsulation format, and it may provide parameters such as the codec in use. This specification defines, or at least assigns to each defined MMBP a media type, in order to uniquely identify the media type.

In order to use MMBPs as defined in this specification as part of a message container format, it is expected that the message container format supports the following functionalities:

1) It can carry an octet string representing the *content* of the MMBP

2) It can signal the *media type* of the content.

3) The content and media type of the content is not restricted, but allows to include formats that are not defined in the core container format.

In addition, a container format may support one or more of the following functionalities in alignment of definitions in IETF MIMI [x31] and IETF RFC 2046 [x26]:

- the body can have multiple, possibly nested parts, referred to as *sub-parts*, with one of the following properties and structures

- *mixed*: there are multiple media types associated with the same message which need to be rendered together, for example a rich-text message with an inline image. The receiver is expected to process as many of the nested parts at this level as possible.

- *alternate*: there are multiple media types associated with the same message and the receiver can choose an appropriate one based on its own policies using the media type or possibly other parameters (e.g. a language) of each part.

- *related*: there are multiple media types associated with the same message and all the nested body parts at this level are part of a single entity that are processed jointly, possibly by providing a root object for initial processing. If the receiver does not understand even one of the nested parts at this level, the receiver is not expected to process any of them.

- *nested*: there are multiple media types associated with the same message, and one or several of the media types are representing a single, mixed, alternate or related structure.

- it may have body parts that reference external content via URI that will be processed automatically. It includes a media type and may optionally include the size of the data, an expiration timestamp other parameters. The content may be rendered with the other parts of the message, or a be downloaded or rendered separately.

- it may have body parts for which the content is encrypted.

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## 4.2 System Descripton

Based on the background and assumptions in clause 4.1, Figure 4.2-1 provides an example system for a messaging services and highlights scope of this specification, namely the definition of a *multimedia messaging body part* (MMBP) and the associated metadata.



Figure 4.2-1 Example system for Messaging multimedia message exchange

A Messaging Service Sender instructs a MMBP generator to generate an MMBP, for example using an API. This for example allows to define configurations on codecs, size, experiences or other attributes of the MMBP. The details of such an API are outside the scope of this specification. The sender adds the MMBP to a Container Message (either included as a body part or by reference), together with MMBP metadata parameters that provide information about the MMBP. Metadata includes, but is not limited to:

- The media type of the MMBP, including subtypes and parameters for codecs, etc.

- The size of the MMBP

- Accessibility or language information about the MMBP

- processing requirements of recommendations of the MMBP

The client of the messaging service receives the container message that includes the above information. The client communicates with a MMBP player its capabilities whether the MMBP can be played back, and if multiple alternatives are present, which of those are to be selected. Then the messaging service client instructs the MMBP player to playback the MMBP as part of the messaging service, based on the processing requirements and instructions. Playback may be combined with additional instructions for a player, including play, pause, seek, etc.

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## 4.3 MMBP Player Model

The design of the formats defined in this document is based on the player model as shown in Figure 4.3-2. The figure illustrates the logical components of a conceptual MMBP Player model. In this figure, the MMBP parser receives the MMBP, and playback instructions. The Messaging Service Client may use metadata provided in a container message for playback selection. Such metadata may for example include codec capability information, language codes, accessibility information and other information for the selection of alternative parts in the MMBP.

The client then provides the sub-parts for processing and decoding to the related sub-part processors, and controls those for playback. The rendered message output may be handed back to the Messaging Service client for inband rendering or may be rendered directly.



Figure 4.3-1 MMBP Player Model

Beyond the MMBP formats, this specification also defines capabilities of 3GPP-based MMBP players.

 Editor’s Note: Do we need profiles?

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## 4.4 Generic MMBP Data Model

Editor’s Note: formalize the data model – stage 2 level

Definition of MMBP, including sub-parts

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## 4.5 Media Capabilities and Profiles

Editor’s Note: Provide a summary of media capabilities and profiles. Formulate what the profiles are about. Profiles are mainly about the level of permitted nesting.