**Source: Dolby Laboratories Inc., Qualcomm incorporated, Nokia Corporation, Ericsson LM**

**Title: Discussion on 5G-Advanced codecs for messaging services**

**Document for: Agreement**

**Agenda Item: 6.2**

1. **Introduction**

This document describes and discusses potential specification work with regards to 5G-Advanced codecs for messaging applications.

There are many messaging applications that leverage the capabilities of 4G/5G IP connectivity to offer instant exchange between individuals or groups of users of text messages but also multimedia content such as images, audio, and video clips. At the same time, GSMA RCS (Rich Communications Services) support is increasing, while SMS/MMS is still a very popular service with universal support, interoperability and roaming. SMS/MMS is used as fallback to GSMA RCS. Because of this, the source considers it important to maintain and upgrade the relevant SA4 specifications in support for messaging applications and services for 5G-Advanced.

1. **Background and proposals on 3GPP codecs and formats specifications for Messaging services**

3GPP SA4 is responsible for two messaging related specifications:

* 3GPP TS 26.140 Multimedia Messaging Service (MMS); Media formats and codecs [1]
* 3GPP TS 26.141 IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs [2]

Several improvements should be considered:

* TS 26.140 only specifies AMR and AMR-WB codecs for speech messages. It would be beneficial to specify the EVS codec and introduce support for Super-Wideband and Full band. In addition, when the IVAS codec is completed & approved in 3GPP, it should be referenced in the GSMA RCS specifications accordingly.
* TS 26.140 only specifies aacPlus and Extended AMR-WB. It would be beneficial to specify support for xHE-AAC codec as is being done for 5G-Media streaming [3].
* Unlike 5G Media streaming TS 26.511 [4], TS 26.140 doesn’t specify any VR Audio/Video formats and codecs. Such capability may be considered by mirroring TS 26.511. Furthermore, it is proposed to elevate MMS to XR considering e.g., glTF as the container format for 3D assets.
* Unlike 5G Media streaming TS 26.511 [4], TS 26.140 is limited to HD with AVC and HEVC and doesn’t specify any Full HD, UHD or 8K profiles. Such capability may be considered.

The same considerations apply to TS 26.141 IMS Messaging specification.

Although GSMA RCS includes references to VoLTE (IR.92 voice), VoWiFi (IR.51 voice), ViLTE (IR.94 video) and GSMA PRD NG.114 - “IMS Profile for Voice, Video and Messaging over 5GS which all reference 3GPP TS 26.114 including media codecs and formats requirements, no explicit profiles of 3GPP messaging formats and codecs specifications are found for RCS Messaging. The GSMA RCS universal Profile Service Definition Document (Version 2.5, 16 October 2020) [5] refers to the GSMA RCC.07 Rich Communication Suite – Advanced Communications Services and Client Specification v12.0 [6] which mandates the usage of AMR codec for Audio messaging in clause 3.2.7. This effectively limits RCS messaging to lower quality than that of MMS which supports WB and potential SWB and Full band support. It is a basic requirement for service providers to enable interoperability with the best possible user experience within technical capacity limits. It is therefore proposed to offer GSMA to define profiles from 3GPP’s specified messaging formats like codecs, profiles, levels, size, resolution etc..

# Conclusion and proposal

The source proposes that the group:

1. discusses the consideration of clause 2) and
2. initiates a communication with GSMA on the matter and
3. starts work for the 5G-Advanced codecs for messaging services.

Offline 20th Feb. 2023 1800-1900

Phase 1: + Interdigital, FhG IIS,

* Quick update of capabilities e.g. to match selected profiles of 5GMS.
* Not including VR360 profile (too limited, no use case)
* Align to 26.511 receiver and sender requirements
* Deprecating old stuff: DIMS, xHTML, 3gp file format, OMA DRM…
* Video ?
	+ Not 8K, limited to Full-HD
	+ HDR ok
* TTML subtitles to be included for accessibility
* AP: check CT specifications wrt transcoding
* Suggestion to decouple messaging capabilities from the service and make it a generic specification or 26.511 messaging profile that 26.140 and other service specifications can reference
* What about Common Encryption ? Would be aligned to 26.511

Phase 2:

* Include 3D (sharing 3D objects), consumed either in immersive context or not
* gLTF is an example and is documented in TR 26.998
* XR use case is in TR 26.998

Liaison to GSMA

* Share proposed WID/SID objectives
* Ask them to review and feedback
* Highlight RCS can leverage a messaging profile

# Annex 1 - References

* [1] 3GPP TS 26.140 Multimedia Messaging Service (MMS); Media formats and codecs
* [2] 3GPP TS 26.141 IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs
* [3] SP-221033 New WID on 5G Media Streaming Audio codec phase 2 for 5G-Advanced (5GMS\_Audio\_Ph2)
* [4] 3GPP TS 26.511 5G Media Streaming (5GMS); Profiles, codecs and formats
* [5] GSMA RCS Universal Profile Service Definition Document (Version 2.5 – 16 October 2020)
* [6] GSMA RCC.07 Rich Communication Suite – Advanced Communications Services and Client Specification v12.0