**3GPP TSG SA WG4 Meeting 132S4-250788**

**Fukuoka, 19-23 May 2025 revision of S4-250581**

**Source: Qualcomm Incorporated**

**Title: Pseudo-CR on [FS\_MeMe] Image Formats**

**Spec: 3GPP TR26.841v1.2.0**

**Agenda item: 8.6**

**Document for: Decision**

**1. Introduction and Discussion**

Image formats are important. See also document S4-250575

**2. Reason for Change**

Motivation for a new study.

**3. Conclusions**

Motivating a new study is preferably done by a new key issue.

**4. Discussion on initial version**

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| --- | --- |
| TDoc | [S4-250581](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250581.zip) |
| Title | [FS\_MeMe] New Key Issue on Image Formats |
| Source | Qualcomm Technologies Int |
| Contact | Thomas Stockhammer |
| Agenda Item | 8.6 |
| E-mail Discussion | [8.6 FS\_MeMe; 581; 15 April 1300 CEST] pCR 26.841 on [FS\_MeMe] Image Formats -> for agreement  [Gabin, Frederic on Mon, 14 Apr 2025 09:00:13 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;538fa1b9.2504b)  [Rufael Mekuria on Mon, 14 Apr 2025 09:35:10 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;5f4bd03a.2504b)  [Thomas Stockhammer on Mon, 14 Apr 2025 09:37:02 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;ed4d729f.2504b)  [Gabin, Frederic on Tue, 15 Apr 2025 13:13:54 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;c89494de.2504c)  [Rufael Mekuria on Wed, 16 Apr 2025 13:22:20 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;2fe21d42.2504c)  [Thomas Stockhammer on Wed, 16 Apr 2025 13:34:16 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;e3e0a921.2504c)  [Rufael Mekuria on Wed, 16 Apr 2025 13:43:03 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;614e7d87.2504c)  [Thomas Stockhammer on Wed, 16 Apr 2025 14:00:45 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;874dc5ff.2504c)  [Rufael Mekuria on Wed, 16 Apr 2025 14:06:35 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;a87b5433.2504c)  [Thomas Stockhammer on Wed, 16 Apr 2025 14:26:46 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;b51150f6.2504c)  [Rufael Mekuria on Wed, 16 Apr 2025 14:46:22 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;bd0b2cda.2504c) |
| Revisions | No revisions available. |
| Minutes | * Thomas: It would be good to have motivation for improved image format. |
| Disposition | Noted. More discussion needed. |
| Status | noted |

This revision addresses a more messaging centric approach to image formats as was requested in the discussion.

**5. Proposal**

It is proposed to agree the following changes to 3GPP TR26.841v1.2.0.

\* \* \* First Change \* \* \* \*

## 5.X Key Topic #7: Image Formats

### 5.X.1 Description

Recent advancements in photo generation and consumption applications on mobile devices have made photos one of the predominant forms for sharing and consuming information. The widespread use of photo-sharing apps, ranging from social media platforms to cloud storage, particular including messaging services, has significantly contributed to this trend. Still there has been very little interoperability specification work done in 3GPP on this topic. There are several factors contributing to this, including the fact that:

- Generation and consumption of photos have been considered less resource taxing for mobile devices. For example, in most cases the consumption is considered non-real time.

- The JPEG standard has been seen for many years as the de facto standard for such applications, and no further study on the topic was seen as needed.

While these may have been valid technologies until just a few years ago, recent developments for the support and handling of photographic images on mobile devices have made the landscape far more complex and necessitate a potential change in perspective. In particular, the following aspects would have to be considered:

- Features such as motion/live photos blur the boundaries between images and video, which is a far more computationally complex format.

- video coding schemes are more and more frequently used for still image compression.

- High Dynamic Range (HDR) capture, playback, and sharing of photographs are currently commonplace.

- Stereoscopic photography is also again gaining some interest.

- There is a multitude of several diverse and extremely popular image editing and sharing apps, that need to handle a multitude of formats,

- AI is finding its way also in photography with tools offered not only for enhancement but also image generation, which may also create concerns about provenance, authenticity, and even ethics.

### 5.X.2 Gap Analysis and Requirements

The lack of image format interoperability is exposed as soon as a user tries to share an image across devices and apps. Photographs for example may be captured and stored on a device in HDR using the HEIC image file format but may have to be converted to a standard dynamic range (SDR) JPEG representation for sharing. Such changes could adversely and significantly deteriorate the quality and the resulting experience.

3GPP TS 26.140, TS 26.141, and TS 26.143, which specify media formats for messaging, have added several image formats besides JPEG in a brief subclause. For example, in TS 26.143 [26143], capabilities for image formats are defined, and image formats are restricted to based JPEG, as well as a very restrictive HEIC formats.

### 5.X.3 Potential Solutions

In order to address the interoperability across image formats for messaging services, different aspects need to be considered are considered in the following:

- Gathering use cases: There are several messaging related use cases for still images on mobile devices. A non-exhaustive list of existing use cases includes:

1. Traditional photo taking for uploading to and sharing via cloud or via social networking.

2. Messaging services including 3GPP MMS and 3rd party services as addressed in TS 26.143

3. AI/ML-based processing of multitude of images in the cloud for redistribution in messaging services.

- Compiling market relevant image formats: It is relevant to understand more details on existing image formats used on mobile devices and their intended applications.

* Defining interoperability and recommendations for normative work: Based on the use cases, interoperability requirements for formats as well as their integration into messaging services are relevant. These interoperability requirements are then subject for potential future work.

### 5.X.4 Summary and Conclusions

Image formats are relevant for message formats. Recent advances for photo generation and consumption applications on mobile devices provides extended opportunities also for messaging formats. Based on the discussion in this clause it is recommended to study recent advances in image formats addressing the following aspects:

- study relevant use cases for image-related interoperability, in particular including those for messaging.

- identify key formats that are supported in services and devices

- identify potentially relevant image formats and compression technologies

- identify potential updates to messaging formats including advanced image formats

\* \* \* End of Changes \* \* \* \*