**3GPP TSG-S4 Meeting#133-e *S4-251343***

**Online, 18th–25th July 2025**

**Source: Apple Inc., Nokia**

**Title: New Feasibility Study on image formats**

**Document for: Agreement**

**Agenda Item: 17.1**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Feasibility Study on image formats

Acronym: FS\_Med\_IM

Unique identifier: 10000xx

Potential target Release: Rel-20

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | X |  | X |  |  |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | Work Task |
| X | Study Item |

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
|  |  |  |
|  |  |  |
|  |  |  |

# 3 Justification

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 and messaging services, has significantly contributed to this trend. However, there has been very little interoperability specification work done in SA4 on this topic. There are several factors contributing to this, including the fact that:

* Generation and consumption of photos have been considered less resource demanding 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 arguments 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 again gaining some interest.
* There is a multitude of diverse and extremely popular image editing and sharing apps that need to handle a multitude of formats.

However, 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. However, these photographs 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.

Recent work in SA4 on Video Operating Points Harmonization and Stereo MV-HEVC (VOPS) is leading to the development of a new specification, namely 3GPP TS 26.265. This specification is currently gathering all mobile relevant video operating points. Such operating points are not limited to 3GPP services but intend to also serve as a guideline for 3rd party services. Currently, however, this specification is not including a comprehensive documentation of operating points for still images. In fact, 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. Looking at the interoperability specification that was done directly as part of the normative Rel-18 PROMISE work item, can lead to the conclusion that more thorough addressing of image formats is needed. It is also interesting to enumerate how AVC and HEVC video coding standards (currently supported by SA4 specifications) are used for images, and how SA4 could specify operating points around them.

# 4 Objective

1. Identify currently widely employed use cases of still images on mobile devices:
	1. Sharing of images using messaging services including 3GPP and 3rd party services.
	2. Traditional photo taking for uploading to and sharing via cloud, social networking, as well as device-to-device sharing.
	3. Taking, processing, and sharing of screen captures.
	4. HDR processing, visualization, and rendering aspects.
2. Identify awidely employed When video coding tools are used for images, the study would use AVC and HEVC video coding standards.
3. Document iography
4. Based on the identified image formats, identify key operating points suitable for interoperability for these image formats.
5. In the cases where interoperability is not the primary focus, a list of guidelines may be provided for mobile devices, based on other criteria such as screen capabilities and computational resource consumption. These use cases are:
	1. use of tiling for edits and random access of large images.
	2. HDR gain map metadata processing capabilities in relation to device support of SDR only/HLG/PQ.
6. Provide recommendations for subsequent normative work.
7. Liaise with MPEG and TC 42 on this topic as needed.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Editor |
| TR | 26.9xx (New) | Evaluation of image formats | SA#111 (Mar 2026) | SA#112 (June 2026) | Waqar Zia (Apple Inc.) |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Apple Inc.

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Apple Inc |
| Nokia |
|  |
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