**3GPP TSG-S4 Meeting#133-e*****S4-251336***

**Online, 18th–25th July 2025**

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| *CR-Form-v12.2* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
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| ***Source to WG:*** | Apple Inc. | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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 can be 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | There are remaining EN’s on missing features like 3D reference info SEI which needs to be implemented. | | | | | | | | |
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| ***Summary of change:*** | | Add recommendation for 3D reference info SEI. | | | | | | | | |
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| ***Consequences if not approved:*** | | Several key features will remain missing. | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.6 | | | | | | | | |
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|  | | **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:*** | |  | | | | | | | | |

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

6.3.6 3GPP MV-HEVC Stereo

6.3.6.1 Introduction

The MV-HEVC Stereo Operation Point permits consistent distribution of stereoscopic content using MV-HEVC. The remainder of this clause 6.3.6 defines the Bitstream and Receiver requirements for the 3GPP-MV-HEVC-Stereo receiver.

6.3.6.2 Bitstream Requirements

A 3GPP-MV-HEVC-Stereo Bitstream shall conform to the following requirements

- the Representation Format included in the Bitstream shall conform to the 3GPP Stereoscopic format as defined in clause 4.4.3.4.

- The bitstream shall conform to the constraints specified in the **MV-HEVC-UHD** decoding capabilities as defined in clause 5.3.2.

- the Bitstream shall be decodable by

- a decoder with **HEVC-UHD-Dec** decoding capabilities as defined in clause 5.3.2. The single based layer (nuh\_layer\_id = 0) would be the only output layer in a single output layer set.

NOTE: According to HEVC/H.265 [h265], a decoder with only **HEVC-UHD-Dec** capability may ignore any output layer set signalling and default to output only the base layer.

- a decoder with **MV-HEVC-Dual-layers-UHD420-Dec** decoding capabilities as defined in clause 5.3.2. for two output layers. A a single output layer set shall contain two output layers, one for each of left and right eye view, respectively.

NOTE: Although the operating point allows for layers in the bitstream that are not output layers, the added storage and/or transport capacity needed for such layers should be taken into account when provisioning a service.

- The chroma sub-sampling shall be 4:2:0 and the value of chroma\_format\_idc shall be set to 1.

- The derived value of AuxId[ lId ] shall be equal to 0 in the VPS extension for an output layer.

- scalability\_mask\_flag[ 1 ] shall be equal to 1 indicating usage of Multiview scalability dimension.

NOTE: This implies that the second also carries primary video.

- The vps\_num\_direct\_ref\_layers[1] may be present, and if present,

- it shall be set to 1.

- the vps\_direct\_ref\_layer\_id[1][0] shall be set to 0.

NOTE: This implies, that layer-dependency is possible, but not needed. The two layers may be independent, or the second layer depend on the base layer. - The aspect\_ratio\_idc value shall be set to 1, indicating a square pixel format.

- In the VUI, either

- the values of colour\_primaries, transfer\_characteristics and matrix\_coeffs each shall be set to 1.

- The value of chroma\_sample\_loc\_type\_top\_field shall be set to 0.

- or

- the values of colour\_primaries and matrix\_coeffs each shall be set to 9, and the value of transfer\_characteristics shall be set to one of the following values: 14 (for SDR with WCG), 16 (for PQ) and 18 (for HLG).

- The value of the chroma\_sample\_loc\_type\_top\_field shall be set to 2.

The timing information may be present.

- If the timing information is present, i.e. the value of vui\_timing\_info\_present\_flag is set to 1, then the values of vui\_num\_units\_in\_tick and vui\_time\_scale shall be set according to the frame rates allowed for each operation point. The timing information present in the video Bitstream should be consistent with the timing information signalled at the system level.

- The frame rate shall not change between two RAPs. fixed\_pic\_rate\_general\_flag value, if present, shall be set to 1.

Bitstreams not required to be associated with frame packing information for all coded video sequences. It is also possible that such information, when present, may differ from one coded video sequence to another.

The bitstream shall include the three\_dimensional\_reference\_displays\_info SEI message as specified in Recommendation ITU-T H.265 / ISO/IEC 23008-2 [h265].

6.3.6.3 Receiver Requirements

Receivers conforming to this Operation Point 3GPP-MV-HEVC-Stereo shall support decoding and rendering Bitstreams with the restrictions defined in clause 6.3.6.2, including the necessary processing of three\_dimensional\_reference\_displays\_info SEI message as specified in Recommendation ITU-T H.265 / ISO/IEC 23008-2 [h265].

NOTE 1: Rendering includes adherence to the parameters signalled in the bitstream to characterize the distributed Representation format.

There are no requirements on output timing conformance for H.265/HEVC decoding (Annex C of [6]). The Hypothetical Reference Decoder (HRD) parameters, if present, should be ignored by the Receiver.

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