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| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  32nd Meeting: Ljubljana, SI, 12–18 July 2018 | Document: JCTVC-AF0021-v2 |

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| *Title:* | **Ambient viewing environment SEI message for AVC** | | |
| *Status:* | Input document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

The ambient viewing environment SEI message was added to HEVC but was not added to AVC.

This JCT-VC input document requests that the next update of AVC add the ambient viewing environment SEI message.

# Introduction

The following proposed text is the same as the text for the corresponding ambient viewing conditions SEI message in HEVC, with the following differences required to conform to AVC:

*Replace the HEVC-specific text:*

When an ambient viewing environment SEI message is present for any picture of a CLVS of a particular layer and the first picture of the CLVS is an IRAP picture, an ambient viewing environment SEI message shall be present for that IRAP picture. The ambient viewing environment SEI message persists for the current layer in decoding order from the current picture until the end of the CLVS. All ambient viewing environment SEI messages that apply to the same CLVS shall have the same content.

*with the following:*

When an ambient viewing environment SEI message is present for any picture of a coded video sequence, an ambient viewing environment SEI message shall be present in the IDR access unit that is the first access unit of the coded video sequence. All ambient viewing environment SEI messages that apply to the same coded video sequence shall have the same content.

The replacement text is equivalent to that in JCTVC-AE1006-v1, “Additional Supplemental Enhancement Information for AVC (Draft 2)” for the mastering display colour volume SEI message.

# Proposed syntax and semantics

Add the following payload type to the General SEI message syntax in appropriate sequence in table in section D.1.1

**D.1.1 General SEI message syntax**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | | |
| else if( payloadType  = =  148 ) |  |  |
| ambient\_viewing\_environment( payloadSize ) | 5 |  |

Add the following ambient viewing environment SEI message syntax at the appropriate section D.1.xx. Renumber existing sections D.1.xx as appropriate.

**D.1.XX Ambient viewing environment SEI message syntax**

|  |  |
| --- | --- |
| ambient\_viewing\_environment( payloadSize ) { | **Descriptor** |
| **ambient\_illuminance** | u(32) |
| **ambient\_light\_x** | u(16) |
| **ambient\_light\_y** | u(16) |
| } |  |

**D.2.XX Ambient viewing environment SEI message semantics**

The ambient viewing environment SEI message identifies the characteristics of the nominal ambient viewing environment for the display of the associated video content. The syntax elements of the ambient viewing environment SEI message may assist the receiving system in adapting the received video content for local display in viewing environments that may be similar or may substantially differ from those assumed or intended when mastering the video content.

This SEI message does not provide information on colour transformations that would be appropriate to preserve creative intent on displays with colour volumes different from that of the described mastering display.

When an ambient viewing environment SEI message is present for any picture of a coded video sequence, an ambient viewing environment SEI message shall be present in the IDR access unit that is the first access unit of the coded video sequence. All ambient viewing environment SEI messages that apply to the same coded video sequence shall have the same content.

**ambient\_illuminance** specifies the environmental illluminance of the ambient viewing environment in units of 0.0001 lux. ambient\_illuminance shall not be equal to 0.

**ambient\_light\_x** and **ambient\_light\_y** specify the normalized x and y chromaticity coordinates, respectively, of the environmental ambient light in the nominal viewing environment, according to the CIE 1931 definition of x and y as specified in ISO 11664-1 (see also ISO 11664-3 and CIE 15), in normalized increments of 0.00002. The values of ambient\_light\_x and ambient\_light\_y shall be in the range of 0 to 50 000.

NOTE – For example, the conditions identified in Rec. ITU-R BT.2035 can be expressed using ambient\_illuminance equal to 100 000 with background chromaticity indicating D65 (ambient\_light\_x equal to 15 635, ambient\_light\_y equal to 16 450), or optionally in some regions, background chromaticity indicating D93 (ambient\_light\_x equal to 14 155, ambient\_light\_y equal to 14 855).

# Patent rights declaration(s)

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