**COMMITTEE DRAFT AMENDMENT****© ISO/IEC 2024 – All rights reserved****Text of ISO/IEC 23090-3:202x (3rd Ed.)/CDAM 1****63****Part 3: Versatile video coding, AMENDMENT 1: Additions and corrections****Information technology — Coded representation of immersive media****Élément introductif — Élément central — Partie 3: Titre de la partie****Information technology — Coded representation of immersive media — Part 3: Versatile video coding, AMENDMENT 1: Additions and corrections****E****2024-09-05****(30) Committee****ISO/IEC****ISO/IEC J****202x (3rd. Ed)****1****Amendment****International Standard****202x****306****ISO/IEC 23090‑****ISO/IEC 23090‑3****ISO/IEC 23090-3:202x (3rd Ed.)/CDAM 1****JISC****Coding of audio, picture, multimedia and hypermedia information****Information technology****5****29****1** **2****見出し 2****見出し 1****0****2****STD Version 2.1c2****30** **4** **ISO/IEC JTC 1/SC 29 /WG 5 N 306**

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**Information technology — Coded representation of immersive media — Part 3: Versatile video coding, AMENDMENT 1: Additions and corrections**

*Élément introductif — Élément central — Partie 3: Titre de la partie*

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Information technology — Coded representation of immersive media — Part 3: Versatile video coding, AMENDMENT 1: Additions and corrections

*Replace subclause D.2.1 with the following:*

**D.2.1 General SEI payload syntax**

|  |  |
| --- | --- |
| sei\_payload( payloadType, payloadSize ) { | **Descriptor** |
| SeiExtensionBitsPresentFlag = 0 |  |
| if( nal\_unit\_type = = PREFIX\_SEI\_NUT ) |  |
| if( payloadType = = 0 ) |  |
| buffering\_period( payloadSize ) |  |
| else if( payloadType = = 1 ) |  |
| pic\_timing( payloadSize ) |  |
| else if( payloadType = = 3 ) |  |
| filler\_payload( payloadSize ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| else if( payloadType = = 4 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| user\_data\_registered\_itu\_t\_t35( payloadSize ) |  |
| else if( payloadType = = 5 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| user\_data\_unregistered( payloadSize ) |  |
| else if( payloadType = = 19 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| film\_grain\_characteristics( payloadSize ) |  |
| else if( payloadType = = 45 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| frame\_packing\_arrangement( payloadSize ) |  |
| else if( payloadType = = 47 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| display\_orientation( payloadSize ) |  |
| else if( payloadType = = 56 ) /\* Specified in ISO/IEC 23001-11 \*/ |  |
| green\_metadata( payloadsize ) |  |
| else if( payloadType = = 129 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| parameter\_sets\_inclusion\_indication( payloadSize ) |  |
| else if( payloadType = = 130 ) |  |
| decoding\_unit\_info( payloadSize ) |  |
| else if( payloadType = = 133 ) |  |
| scalable\_nesting( payloadSize ) |  |
| else if( payloadType = = 137 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| mastering\_display\_colour\_volume( payloadSize ) |  |
| else if( payloadType = = 142 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| colour\_transform\_info( payloadSize ) |  |
| else if( payloadType = = 144 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| content\_light\_level\_info( payloadSize ) |  |
| else if( payloadType = = 145 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| dependent\_rap\_indication( payloadSize ) |  |
| else if( payloadType = = 147 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| alternative\_transfer\_characteristics( payloadSize ) |  |
| else if( payloadType = = 148 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| ambient\_viewing\_environment( payloadSize ) |  |
| else if( payloadType = = 149 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| content\_colour\_volume( payloadSize ) |  |
| else if( payloadType = = 150 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| equirectangular\_projection( payloadSize ) |  |
| else if( payloadType = = 153 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| generalized\_cubemap\_projection( payloadSize ) |  |
| else if( payloadType = = 154 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| sphere\_rotation( payloadSize ) |  |
| else if( payloadType = = 155 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| regionwise\_packing( payloadSize ) |  |
| else if( payloadType = = 156 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| omni\_viewport( payloadSize ) |  |
| else if( payloadType = = 165 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| alpha\_channel\_info( payloadSize ) |  |
| else if( payloadType = = 168 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| frame\_field\_info( payloadSize ) |  |
| else if( payloadType = = 177 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| depth\_representation\_info( payloadSize ) |  |
| else if( payloadType = = 179 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| multiview\_acquisition\_info( payloadSize ) |  |
| else if( payloadType = = 180 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| multiview\_view\_position( payloadSize ) |  |
| else if( payloadType = = 200 ) |  |
| sei\_manifest( payloadSize ) |  |
| else if( payloadType = = 201 ) |  |
| sei\_prefix\_indication( payloadSize ) |  |
| else if( payloadType = = 202 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| annotated\_regions( payloadSize ) |  |
| else if( payloadType = = 203 ) |  |
| subpic\_level\_info( payloadSize ) |  |
| else if( payloadType = = 204 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| sample\_aspect\_ratio\_info( payloadSize ) |  |
| else if( payloadType = = 205 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| shutter\_interval\_info( payloadSize ) |  |
| else if( payloadType = = 206 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| extended\_drap\_indication( payloadSize ) |  |
| else if( payloadType = = 207 ) |  |
| constrained\_rasl\_encoding\_indication( payloadSize ) |  |
| else if( payloadType = = 208 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| scalability\_dimension\_info( payloadSize ) |  |
| else if( payloadType = = 209 ) /\* Specified in ISO/IEC 23090-13 \*/ |  |
| vdi\_sei\_envelope( payloadsize ) |  |
| else if( payloadType = = 210 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| nn\_post\_filter\_characteristics( payloadSize ) |  |
| else if( payloadType = = 211 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| nn\_post\_filter\_activation( payloadSize ) |  |
| else if( payloadType = = 212 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| phase\_indication( payloadSize ) |  |
| else if( payloadType = = 213 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| sei\_processing\_order( payloadSize ) |  |
| else if( payloadType = = 214 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| processing\_order\_nesting( payloadSize ) |  |
| else if( payloadType = = 215 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| encoder\_optimization\_info( payloadSize ) |  |
| else if( payloadType = = 216 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| source\_picture\_timing\_info( payloadSize ) |  |
| else if( payloadType = = 217 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| object\_mask\_info( payloadSize ) |  |
| else if( payloadType = = 218 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| modality\_info( payloadSize ) |  |
| else if( payloadType = = 219 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| text\_description( payloadSize ) |  |
| else /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| reserved\_message( payloadSize ) |  |
| else /\* nal\_unit\_type = = SUFFIX\_SEI\_NUT \*/ |  |
| if( payloadType = = 3 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| filler\_payload( payloadSize ) |  |
| else if( payloadType = = 132 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| decoded\_picture\_hash( payloadSize ) |  |
| else if( payloadType = = 133 ) |  |
| scalable\_nesting( payloadSize ) |  |
| else if( payloadType = = 214 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| processing\_order\_nesting( payloadSize ) |  |
| else if( payloadType = = 215 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| encoder\_optimization\_info( payloadSize ) |  |
| else if( payloadType = = 217 ) /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| object\_mask\_info( payloadSize ) |  |
| else /\* Specified in Rec. ITU-T H.274 | ISO/IEC 23002-7 \*/ |  |
| reserved\_message( payloadSize ) |  |
| if( SeiExtensionBitsPresentFlag | | more\_data\_in\_payload( ) ) { |  |
| if( payload\_extension\_present( ) ) |  |
| **sei\_reserved\_payload\_extension\_data** | u(v) |
| **sei\_payload\_bit\_equal\_to\_one** /\* equal to 1 \*/ | f(1) |
| while( !byte\_aligned( ) ) |  |
| **sei\_payload\_bit\_equal\_to\_zero** /\* equal to 0 \*/ | f(1) |
| } |  |
| } |  |

*In subclause D.2.2, make the following changes:*

...

**Table D.1 – Persistence scope of SEI messages (informative)**

|  |  |
| --- | --- |
| **SEI message** | **Persistence scope** |
| Buffering period | The remainder of the bitstream |
| Picture timing | The AU containing the SEI message |
| DU information | The AU containing the SEI message |
| Scalable nesting | Depending on the scalable-nested SEI messages. Each scalable-nested SEI message has the same persistence scope as if the SEI message was not scalable-nested |
| SEI manifest | The CVS containing the SEI message |
| SEI prefix indication | The CVS containing the SEI message |
| Subpicture level information | The CVS containing the SLI SEI message and up to but not including the next CVS, in decoding order, that contains an SLI SEI message with different content |
| Constrained RASL encoding indication | The CVS containing the SEI message |

...

The list VclAssociatedSeiList is set to consist of the payloadType values 3, 19, 45, 47, 129, 132, 137, 142, 144, 145, 147 to 150, inclusive, 153 to 156, inclusive, 165, 168, 177, 179, 180, 200 to 202, inclusive, and 204 to 214, inclusive.

...

*Replace subclause D.11.2 with the following (where highlighted text indicates the changes):*

**D.11.2 Use of the film grain characteristics SEI message**

For purposes of interpretation of the film grain characteristics SEI message, the following variables are specified:

If the film grain characteristics SEI message is not applied as part of a processing chain indicated by an SEI processing order SEI message or is applied as the first processing step of the processing chain indicated by an SEI processing order SEI message, the following applies:

– PicWidthInLumaSamples and PicHeightInLumaSamples are set equal to pps\_pic\_width\_in\_luma\_samples and pps\_pic\_height\_in\_luma\_samples, respectively.

– ChromaFormatIdc is set equal to sps\_chroma\_format\_idc.

– BitDepthY and BitDepthC are both set equal to BitDepth.

Otherwise (the film grain characteristics SEI message is applied as the second or a later processing step of the processing chain indicated by an SEI processing order SEI message), prevPic is a picture resulting from the previous processing step of the processing chain indicated by the SEI processing order SEI message, and the following applies:

– PicWidthInLumaSamples and PicHeightInLumaSamples are set equal to the picture width and picture height of prevPic, respectively.

– ChromaFormatIdc is set equal to the picture chroma format indicator of prevPic.

– BitDepthY and BitDepthC are set equal to the luma bit depth and chroma bit depth of prevPic, respectively.

*Add subclause D.12.13 as follows:*

**D.12.13 Use of the SEI processing order and processing order nesting SEI messages**

For purposes of interpretation of the SEI processing order and processing order nesting (PON) SEI messages, the following are specified:

– The list SeiProcessingOrderSeiList is set to consist of the payloadType values 3, 4, 5, 19, 137, 142, 144, 147, 148, 149, 150, 153, 155, 165, 177, 210, and 211.

– The list SpoProcessSeiList is set to consist of the payloadType values 19, 142, 155, 210, and 211.

– The syntax structrure sei\_pon\_nested\_message( ), the container of SEI messages, is set to be identical to the syntax structure sei\_message( ).

The SEI messages contained in a PON SEI message are referred to as PON-nested SEI messages. When a generalized cubemap project SEI message is present with gcmp\_persistence\_flag equal to 1 that is not a PON-nested SEI message, there shall not be an associated generalized cubemap project SEI message in the same CLVS that is a PON-nested SEI message.

*Add subclause D.12.14 as follows:*

**D.12.14 Use of the source picture timing SEI message**

For purposes of interpretation of the source picture timing SEI message, the following variable is specified:

– TemporalId is set equal to TemporalId.

\_\_\_\_\_\_\_\_\_\_\_\_