1. Annex E  
     
   Video usability information

(This annex forms an integral part of this Recommendation | International Standard)

* 1. VUI semantics
     1. VUI parameters semantics

The specifications in clause E.2.1 apply with the following modifications and additions.

**video\_signal\_type\_present\_flag** equal to 1 specifies that video\_format, video\_full\_range\_flag and colour\_description\_present\_flag are present. video\_signal\_type\_present\_flag equal to 0, specifies that video\_format, video\_full\_range\_flag and colour\_description\_present\_flag are not present. It is a requirement of bitstream conformance that, when nuh\_layer\_id is greater than 0, video\_signal\_type\_present\_flag shall be equal to 0.

When a current picture with nuh\_layer\_id layerIdCurr greater than 0 and NumDirectRefLayers[ layerIdCurr ] is greater than 0 refers to an SPS containing the VUI parameter syntax structure, the following applies:

– The values of video\_format, video\_full\_range\_flag, colour\_primaries, transfer\_characteristics, and matrix\_coeffs are inferred to be equal to video\_vps\_format, video\_full\_range\_vps\_flag, colour\_primaries\_vps, transfer\_characteristics\_vps, and matrix\_coeffs\_vps, respectively, of the vps\_video\_signal\_info\_idx[ j ]-th video\_signal\_info( ) syntax structure in the active VPS where j is equal to LayerIdxInVps[ layerIdCurr ].

– The values of video\_format, video\_full\_range\_flag, colour\_primaries, transfer\_characteristics, and matrix\_coeffs signalled in the active SPS for the layer with nuh\_layer\_id equal to layerIdCurr are ignored.

NOTE – The values are inferred from the VPS when a non-base layer refers to an SPS that is also referred to by the base layer, in which case the SPS has nuh\_layer\_id equal to 0. For the base layer, the values of these parameters in the active SPS for the base layer apply.

E.3.2 HRD parameters semantics

The specifications in clause E.3.2 apply with the following modifications and additions.

**initial\_cpb\_removal\_delay\_length\_minus1** plus 1 specifies the length, in bits, of the nal\_initial\_cpb\_removal\_delay[ i ], nal\_initial\_cpb\_removal\_offset[ i ], vcl\_initial\_cpb\_removal\_delay[ i ], and vcl\_initial\_cpb\_removal\_offset[ i ] syntax elements of the buffering period SEI message. Additionally, initial\_cpb\_removal\_delay\_length\_minus1 plus 1 within the j-th hrd\_parameters( ) syntax structure in the VPS specifies the length, in bits, of the nal\_initial\_arrival\_delay[ i ] and vcl\_initial\_arrival\_delay[ i ] syntax elements of the bitstream partition initial arrival time SEI message that is contained in a bitstream partition nesting SEI message within a scalable nesting SEI message with nesting\_op\_idx[ 0 ] equal to hrd\_layer\_set\_idx[ j ]. When the initial\_cpb\_removal\_delay\_length\_minus1 syntax element is not present, it is inferred to be equal to 23.