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| *Title:* | **Errata for FGC SEI message semantics** | | |
| *Status:* | Input document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution proposes to correct the semantics of the film grain characteristics SEI message to support bit depths greater than 8 bits.

# Introduction

Film grain characteristics syntax limits values for intensity\_interval\_lower\_bound[ c ][ i ] and intensity\_interval\_lower\_bound[ c ][ i ] to the range 0 to 255, inclusive.

intensity\_interval\_lower\_bound[ c ][ i ] and intensity\_interval\_lower\_bound[ c ][ i ] define luma sample value intervals. Luma samples having a value within each interval are modified by the film grain generation process according to interval-specific parameters. Luma samples having a value that does not fall into any of the defined intervals are not modified by the film grain generation process. Thus, for a 10-bit picture, for example, the luma samples having a value greater than 255 are not modified by the film grain generation process.

(Note that the FGC SEI example software described in JCTVC-AM0023, JCTVC-AN0022, and JVET-R0359 for AVC, HEVC, and VVC, respectively, are constistent with the semantics proposed below.)

# Proposed modified specification text

Modify film grain characteristics SEI message semantics (In HEVC D.3.13 and AVC D.2.19) as follows (modifications are highlighted in yellow):

Depending on the value of film\_grain\_model\_id, the selection of the sets of model values is specified as follows:

– If film\_grain\_model\_id is equal to 0, the average value of each block b of 8x8 samples in Idecoded, divided by (1<<( filmGrainBitDepth[ c ] – 8)), referred to as bavg, is used to select the sets of model values with index s[ j ] that apply to all the samples in the block:

* for( i = 0, j = 0; i  <=  num\_intensity\_intervals\_minus1[ c ]; i++ )  
   if( bavg  >=  intensity\_interval\_lower\_bound[ c ][ i ]    
   &&  bavg  <=  intensity\_interval\_upper\_bound[ c ][ i ] ) {  
   s[ j ] = i (D-8)  
   j++  
   }

– Otherwise (film\_grain\_model\_id is equal to 1), the sets of model values used to generate the film grain are selected for each sample value in Idecoded, divided by (1<<( filmGrainBitDepth[ c ] – 8)), referred as Iinterval, as follows:

* for( i = 0, j = 0; i  <=  num\_intensity\_intervals\_minus1[ c ]; i++ )  
   if( Iinterval[ x, y, c ]  >=  intensity\_interval\_lower\_bound[ c ][ i ]  &&    
   Iinterval[ x, y, c ]  <=  intensity\_interval\_upper\_bound[ c ][ i ] ) { (D-9)  
   s[ j ] = i  
   j++  
   }

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