**INTERNATIONAL ORGANISATION FOR STANDARDISATION**

**ORGANISATION INTERNATIONALE DE NORMALISATION**

**ISO/IEC JTC1/SC29/WG11**

**CODING OF MOVING PICTURES AND AUDIO**

**ISO/IEC JTC1/SC29/WG11 MPEG2012/M** **26635**

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| **Source:** | CANNB |
| **Title** | Comments on HEVC and HEVC profiles |
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Support for a still image profile of HEVC  
  
The Canadian National Body considers the definition of an HEVC still image profile being beneficial to the industry and would be pleased to see it defined as part of the HEVC IS deliverable.  
Further as EXIF metadata are widely used with current still image codecs, it would be beneficial that product implementing an HEVC still image profile could also rely on those (possibly with other widely used image metadata). The Canadian NB proposes to discuss with the JCT-VC, MPEG and SC29 WG1 groups (via joint meeting or liaison process), the need of a common data structure for the HEVC still image and main profile, to represent EXIF like metadata(and possibly other additional ones).  
  
Rational:  
As EXIF data are widely generated today for still image, keeping a similar formatting for HEVC still image and main profiles would ensure a broad adoption and easy population of data in a possible common data structure. Though pure inclusion of EXIF metadata as is, seems unsuitable.  
In AVC and HEVC; VUI, SPS information and multiple SEI messages provide equivalent information to some EXIF tags. Examples are fields in the tone mapping information SEI message, the user data registered SEI message and the User data unregistered SEI message, the scene orientation SEI message; though they are not covering the full set of EXIF tags that could be relevant for video sequences.  
Other examples of useful EXIF tags are:  
 -          maker note, make, model, software, zoom level (F Number, focal length) for debugging purposes  
 -          scene capture type, GPS, origin among others for post processing purposes.  
 Some of those parameters would need to be adapted with a temporal dimension.  
  
Possible options:  
-          Keeping separate mechanisms to convey equivalent information for an HEVC still image and an HEVC main profile. When a product will offer both capabilities, this might not be perceived as an optimal solution.  
-          Aggregating information from multiple places for HEVC main profile:  using the VUI, multiple SEI messages and some system level information could be a solution, but that seems cumbersome and does not provide today the desire completeness of data. Enhancing some of the SEI messages with the perceived missing information may help but will still require aggregating information.  
-        Using proprietary means. This might not necessarily be suitable or doable.  
-          Defining a common data structure for HEVC still image and main profiles: This could imply having fields that would be redundant with already existing AVC/HEVC SEI messages, VUI and SPS information. This could raise some concerns, and some priority might need to be assigned between such overlapping e.g. SEI messages (for correctness of information).  It should also be discussed where those data would be best made available: in an SEI message, a file format or other.

In order to confirm the feasibility of conveying these Exif like metadata for both HEVC still and main profiles, the Canadian NB would encourage a working software to be provided along with possible technical proposals.

On HEVC de-blocking filter

As an outcome of the MPEG 101 meeting, a CE on improving the HEVC de-blocking filter has been issued. A careful review of the proposals in the CE1 has been performed by some members of the Canadian delegation. While some CE1 proposals seem to help, the de-blocking artifact issue does not appear to be solved.   
Those proposals have been further tested on different conditions (with different QPs, with different sequences etc). In particular blocking artifacts remain fairly visible in some 720p sequences at QP27 at 30fps. The issue needs to be fixed.  
The Canadian NB hopes that some non CE1 proposals will resolve the problem.  
In that spirit the Canadian NB proposes to discuss both CE1 and non CE1 proposals that will be submitted at the MPEG 102 meeting without preferences for CE1 proposals.  
The Canadian NB consider that the stability of the HEVC DIS text is not enough of a reason to minimize changes that could be needed to the draft specification in order to resolve that issue. Similarly, if proposals received at the MPEG 102 meetings are judged beneficial but not sufficient, the Canadian NB proposes that the work on the de-blocking filter will continue until the MPEG 103 meeting.