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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**  18th Meeting: Sapporo, JP, 30 June – 9 July 2014 | Document: JCTVC-R0011 |

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| *Title:* | **JCT-VC AHG report: SHVC text editing (AHG11)** | | |
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# Abstract

This document reports the work of the JCT-VC ad hoc group on SHVC text editing (AHG11) between the 17th JCT-VC meeting in Valencia, Spain, (27 March – 4 April 2014) and 18th JCT-VC meeting in Sapporo, Japan, (30 June – 9 July 2014).

# Mandate

At the 17th meeting of the ITU-T/ISO/IEC Joint Collaborative Team on Video Coding (JCT-VC), AHG11 on SHVC text editing was established with the following mandates:

* Produce and finalize JCTVC-Q1007 SHVC Test Model 6 (SHM 6) text.
* Produce and finalize JCTVC-Q1008 SHVC text specification Draft 6.
* Gather and address comments for corrections and editorial improvements of these documents.
* Coordinate with AHG12 on SHVC software development to address issues relating to mismatches between software and text

# Summary of Activities

The editorial team worked on two documents: JCTVC-Q1007 (SHVC Test Model 6 text) [1] and JCTVC-Q1008 (SHVC draft 6) [2]. Editing JCTVC-Q1008 was assigned a higher priority than editing JCTVC-Q1007.

One version of JCTVC-Q1007 and five versions of JCTVC-Q1008 were published by the editing AHG following the 17th JCT-VC meeting in Valencia.

The main changes in JCTVC-Q1008, relative to the previous JCTVC-P1008 (SHVC Draft 5), are:

* + Incorporation of all common SHVC and MV-HEVC HLS normative adoptions at the 17th JCTVC meeting.
  + Integration of all SHVC-specific normative adoptions at the 17th JCTVC meeting.
  + Integration of five single layer SEI messages, including three SEI messages deferred from Rext specification.
  + Fixes of bug tracker tickets, editorial improvements and fixes.

JCTVC-Q1007 Test Model 6 document mainly contains the general descriptions of SHVC framework, texture data resampling process, motion field mapping process and colour mapping process. The main change to the previous JCTVC-P1007 (SHM5) is the inclusion of a description of the colour mapping process for colour gamut scalability.

# Issues to report

## Specification for colour gamut scalability

Colour gamut scalability based on 3D Look-Up-Table (LUT) mapping process was adopted at the Valencia meeting, and it was decided to limit the table size up to 8x2x2.

In the current specificaton (and the accompanying SHM software), a syntax element, named 'cm\_octant\_depth', is used to control the table size. This syntax element shall be less than or equal to 1 to limit the table size to 8x2x2 at most, so that 1 bit is enough for it. However, at this moment, the SHVC specification (and the accompanying SHM software) was drafted in a way that the syntax element cm\_octant\_depth is 2 bits long and the value is restricted to be 0 and 1. The AHG11 had received concern about the text as well as the accompanying software. It was asserted that the text specification was drafted more general than what’s adopted since the decoding process supports the prohibited value of the syntax. And it has been asserted that this excess generality makes the text and the software more complicated than the case of 1 bit syntax representation.

The editors suggest the JCTVC discuss on whether to keep the 2 bits representation of the syntax element 'cm\_octant\_depth' and the decoding process of the prohibited value. The contribution [JCTVC-R0179](http://phenix.int-evry.fr/jct/doc_end_user/current_document.php?id=9249) is related to this issue.

## Specification for colour resampling hint SEI message

It’s asserted that the information delivered by the syntax element 'minimum\_degradation\_flag' can be identified from filter coefficient values at the decoder. The editors and original proponent suggest the JCTVC discuss the necessity of this flag at Sapporo meeting and consider removal of this flag from SHVC draft.

# Recommendations

The AHG recommends to:

* Use SHVC bug-tracker (<https://hevc.hhi.fraunhofer.de/trac/shvc>) to report issues related to SHVC Draft and Test Model text.
* Compare the SHVC documents with the SHVC software and resolve any discrepancies that may exist, in collaboration with the SHVC Software AHG.
* Continue to improve the overall editorial quality of the SHVC Draft and Test Model documents.
* Request that proponents provide mature text for integration into the SHVC draft.
* The editing group go through all editor’s notes and identify those that need the JCTVC to discuss whether technical changes are needed to for them to be addressed. For example:
  + [Ed. Are the tiles in an MCTS required to be in separate NAL units from the tiles that are not in the MCTS]

# Reference

1. J. Chen, J. Boyce, Y. Ye and M. M. Hannuksela, “Scalable HEVC (SHVC) Test Model 6 (SHM 6)”, JCTVC-Q1007, 17th JCTVC Meeting, Valencia, Valencia, Spain, Mar. 2014
2. J. Chen, J. Boyce, Y. Ye, M. M. Hannuksela, G. J. Sullivan and Y.-K. Wang, “Scalable High Efficiency Video Coding Draft 6”, JCTVC-Q1008, 17th JCTVC Meeting, Valencia, Valencia, Spain, Mar. 2014