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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**  30th Meeting: Gwangju, KR, 20–26 Jan. 2018 | Document: JCTVC-AD0025-v2 |

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| *Title:* | **Questions on reference software capabilities for experimental uses** | | |
| *Status:* | Input document to JCT-VC | | |
| *Purpose:* | Query for discussion and potential action | | |
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# Abstract

This document contains questions about HEVC reference software capabilities and limitations for experimental uses. It was generated in response to comments and queries that arose in MPEG (see WG 11 output documents N16522 and N17133, and inputs m42109 and m42150).

It is requested to determine the extent to which these concerns are valid and whether it is feasible to extend the software to address the limitations.

# Specific queries

1. 3D-HEVC encoding/decoding with more than 16 views (suggested to be a non-normative issue; see patch provided in WG 11 N 16522)
2. encoding/decoding with more than 16 PPSs "pps\_seq\_parameter\_set\_id shall be in the range 0 to 15 inclusive " (MV-HEVC and 3D-HEVC; sharing PPSs across multiple views may be an acceptable work-around)
3. Maximum layer ID range "The value of nuh\_layer\_id shall be in the range of 0 to 62, inclusive." (MV-HEVC and 3D-HEVC). For experiments reported in m42150, this limitation was addressed by increasing the length of nuh\_layer\_id from 6 bits to 8 bits, and removing 2 bits from nuh\_temporal\_id\_plus1 (which became only one bit). The latter change was motivated by not wanting to increase the 16-bit length of the NAL unit header.
4. Lack of support for temporal sub-layers in HTM software (3D-HEVC).
5. Lack of support (or limited support) for vertically displaced inter-view prediction in 3D-HEVC.
6. depthRefinementFlag limited to 0 for views other than those with view ID equal to 0, 1, or 2 in 3D-HEVC.
7. depth maps with a bit depth greater than 8 in 3D-HEVC.
8. layers required to be ordered from left to right for HTM encoding for 3D-HEVC (view IDs must increase and the encoder needs this relationship for effective encoding).
9. operation with picture sizes larger than 8192×4320 (see m42109).
10. operation with bit depths greater than 12, and especially equal to 16, including lossless modes (see m42109).