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| *Title:* | **Test Material for Subjective Comparison of 3D-HEVC and MV-HEVC with depth coding** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution summarizes the test material, prepared for the visual comparison between MV-HEVC (with depth map carriage) and 3D-HEVC. For each coding method, 8 test sequences with 4 rate points have been prepared with the following Texture QPs for the independent view: 45, 40, 35, and 30. For each rate point, two stereo pairs have been produced.

# Experimental Results

For the subjective comparison between 3D-HEVC and MV-HEVC with depth map carriage, bit streams have been produced for all 8 test sequences at 4 different rate points. For each sequence and rate point, approximately equal PSNR was targeted and the associated bit streams obtained, with rates given in section 1.1. From the decoded bit streams, a stereo pairs were extracted, as given in section 1.2. The produced material is provided for subjective viewing at the meeting. For creation of 3D-HEVC sequences HTM-15.1 has been used. For creation the creation MV-HEVC plus depth bit streams a modified version of HTM-15.1 enabling VSO has been used.

## Rate Points

For the subjective comparison, 4 rate points were produced with the following Texture QPs for the independent view: 45, 40, 35, and 30 (according to N12352 which is the last CTC document recommending QPs for subjective viewing). For each rate point, a bit stream was produced for both coding methods, such that PSNR values of enhancement texture views and synthesized views are approximately equal for 3D-HEVC and MV-HEVC with depth map coding. Accordingly, 2 different bit rates were obtained, as given in the table below:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test Sequence | 3D-HEVC bit rates (kbps) | | | | MV-HEVC+D bit rates (kbps) | | | |
| R1 | R2 | R3 | R4 | R1 | R2 | R3 | R4 |
| S01: Poznan\_Hall2 | 98 | 171 | 308 | 603 | 126 | 215 | 388 | 711 |
| S02: Poznan\_Street | 171 | 328 | 651 | 1444 | 199 | 379 | 770 | 1669 |
| S03: Undo\_Dancer | 285 | 591 | 1261 | 2778 | 378 | 758 | 1553 | 3240 |
| S04: GT\_Fly | 228 | 469 | 974 | 2138 | 296 | 601 | 1237 | 2632 |
| S05: Kendo | 146 | 253 | 443 | 827 | 193 | 332 | 579 | 1080 |
| S06: Balloons | 149 | 264 | 458 | 840 | 184 | 333 | 579 | 1069 |
| S08: Newspaper1 | 151 | 266 | 477 | 923 | 184 | 329 | 618 | 1156 |
| S10: Shark | 307 | 646 | 1342 | 2786 | 414 | 864 | 1783 | 3521 |

## Output Views

For both coding methods, 3D-HEVC and MV-HEVC a set of stereo pairs were generated as given in the table below. The stereo pair consists of 2 synthesized views.

|  |  |  |  |
| --- | --- | --- | --- |
| **Seq. ID** | **Test Sequence** | **Input Views** | **Output Stereo #1**  **(2 synthesized views)** |
| S01 | Poznan\_Hall2 | 7-6-5 | (6.25-5.75) |
| S02 | Poznan\_Street | 5-4-3 | (4.25-3.75) |
| S03 | Undo\_Dancer | 1-5-9 | (4-6) |
| S04 | GT\_Fly | 9-5-1 | (6-4) |
| S05 | Kendo | 1-3-5 | (2.5-3.5) |
| S06 | Balloons | 1-3-5 | (2.5-3.5) |
| S08 | Newspaper1 | 2-4-6 | (3.5-4.5) |
| S10 | Shark | 1-5-9 | (4.0-6.0) |

# Recommendation

Subjective viewing of the material is proposed, to assess the quality of both methods, as well as to confirm the objective coding results.