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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 (depth map carriage) and 3D-HEVC. For each coding method, all 8 test sequences with 5 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, equal PSNR was targeted and the associated bit streams obtained, with rates given in section 1.1. From the bit streams, two different stereo pairs were extracted, as given in section 1.2. The produced material is provided for informal subjective viewing at the meeting. For creation of 3D-HEVC sequences HTM-9.0r1 has been used. For creation of MV-HEVC plus depth HTM-9.0r1-F0122 has been utilized.

## Rate Points

For the subjective comparison, 4 rate points were produced with 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 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 | 96 | 165 | 298 | 584 | 123 | 206 | 358 | 671 |
| S02: Poznan\_Street | 171 | 325 | 639 | 1391 | 203 | 379 | 733 | 1571 |
| S03: Undo\_Dancer | 277 | 570 | 1222 | 2709 | 348 | 705 | 1454 | 3090 |
| S04: GT\_Fly | 212 | 438 | 913 | 1990 | 272 | 558 | 1142 | 2436 |
| S05: Kendo | 140 | 244 | 427 | 788 | 186 | 321 | 553 | 995 |
| S06: Balloons | 145 | 254 | 446 | 799 | 184 | 324 | 558 | 998 |
| S08: Newspaper1 | 152 | 266 | 465 | 862 | 185 | 318 | 556 | 1029 |
| S10: Shark | 285 | 605 | 1255 | 2568 | 375 | 788 | 1611 | 3259 |

## Output Views

For both coding methods, 3D-HEVC and MV-HEVC with simulcast depth map coding, two sets of stereo pairs were generated as given in the table below. The first stereo pair consists of 2 synthesized views, while the second stereo pair consists of one original and one synthesized view.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Seq. ID** | **Test Sequence** | **Input Views** | **Output Stereo #1**  **(2 synthesized views)** | **Output Stereo #2**  **(1 original, 1 synthesized)** |
| S01 | Poznan\_Hall2 | 7-6-5 | (6.25-5.75) | (7-6.5) |
| S02 | Poznan\_Street | 5-4-3 | (4.25-3.75) | (5-4.5) |
| S03 | Undo\_Dancer | 1-5-9 | (4-6) | (1-3) |
| S04 | GT\_Fly | 9-5-1 | (6-4) | (9-7) |
| S05 | Kendo | 1-3-5 | (2.5-3.5) | (1-2) |
| S06 | Balloons | 1-3-5 | (2.5-3.5) | (1-2) |
| S08 | Newspaper1 | 2-4-6 | (3.5-4.5) | (2-3) |
| S10 | Shark | 1-5-9 | (4.0-6.0) | (1-3) |

# Recommendation

Informal subjective viewing of the material is proposed, to assess the quality of both methods, as well as to confirm the objective coding results. Also, the rate points should be confirmed for more formal subjective testing.

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