

Title: **Cross-Check of Improved nonlinear depth representation (3D-ATM)**

Status: Input Document

Purpose: Proposal

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Abstract

This contribution reports an cross-check result of Improved Nonlinear Depth Representation proposal by Samsung described in JCT3V-B0155 [1] for 3D-ATM. The cross check has been performed by Poznan University of Technology.

1 Cross-check results

The simulations results were generated on a ~80 core cluster system. The cluster platform's processing units have the following specifications:

- Processor: Intel Xeon X5675
- Clock Speed: 3.06 GHz
- Memory: approx. 4 GB per Core
- OS: 64-bit Windows Server 2008
- Compiler: Microsoft Visual Studio 2008 (64 bit)

Overview of the results for HP and EHP profile are shown in Table 1 and 2 respectively. All simulation results are attached to this document in excel sheets. The obtained coding results are in perfect match with those provided in JCT3V-B0155 [1]. There are some small differences in view rendering PSNRs, probably related to different run platforms.

Table 1 Simulation results for 3-view case - HP profile

Texture Coding		Depth Coding		Total (Coded PSNR)		Total (Synthesed PSNR)	
dBR, %	dPSNR,dB	dBR, %	dPSNR,dB	dBR, %	dPSNR,dB	dBR, %	dPSNR,dB
0,00	0,00	0,11	-0,01	0,02	0,00	0,02	0,00
0,00	0,00	0,09	0,00	0,01	0,00	0,01	0,00
0,00	0,00	0,06	0,00	0,00	0,00	0,00	0,00
0,00	0,00	-17,84	1,18	1,63	-0,07	-1,07	0,04
0,00	0,00	0,03	0,00	0,01	0,00	0,01	0,00
0,00	0,00	0,05	0,00	0,01	0,00	0,01	0,00
0,00	0,00	13,19	-0,52	-7,35	0,33	-1,54	0,06
0,00	0,00	-0,62	0,09	-0,81	0,04	-0,37	0,01

Table 2 Simulation results for 3-view case - EHP profile

Texture Coding		Depth Coding		Total (Coded PSNR)		Total (Synthesed PSNR)	
dBR, %	dPSNR,dB	dBR, %	dPSNR,dB	dBR, %	dPSNR,dB	dBR, %	dPSNR,dB
0,00	0,00	0,34	-0,02	0,04	0,00	0,04	0,00
0,00	0,00	0,21	-0,01	0,02	0,00	0,02	0,00
0,00	0,00	0,12	-0,01	0,01	0,00	0,01	0,00
-0,77	0,03	-19,59	1,21	0,70	-0,02	-2,00	0,07
0,00	0,00	0,10	-0,01	0,02	0,00	0,02	0,00
0,00	0,00	0,16	-0,01	0,02	0,00	0,02	0,00
0,19	-0,01	14,96	-0,63	-6,15	0,26	0,07	0,00
-0,08	0,00	-0,53	0,08	-0,76	0,03	-0,26	0,01

2 Conclusion

Cross-check results for AHG5 MV-HEVC Software for HTM have been reported in this contribution. The coding simulation results are in perfect match with those provided in JCT3V-B0155 [1].

There are some small differences in view rendering PSNRs, probably related to different run platforms.

References

- [1] Ilsoon Lim, Jaejoon Lee, "Improved nonlinear depth representation", Joint Collaborative Team on 3D Video Coding Extension Development of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11 Doc. JCT3V-B0155, 2nd Meeting: Shanghai, CN, 13–19 Oct. 2012.