INTERNATIONAL ORGANISATION FOR STANDARDISATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC1/SC29/WG11
CODING OF MOVING PICTURES AND AUDIO

ISO/IEC JTC1/SC29/WG11
MPEG/M20192
March 2011, Geneva, Switzerland

Title	**3DV/FTV EE4 report on Poznan Street and Poznan CarPark sequences**
Sub group	**Video**
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1 Introduction

This document presents results of Exploration Experiment (EE4) performed on "Poznan_Street" and "Poznan CarPark" sequences [2] and is in response to W11831 "Description of Exploration Experiments in 3D Video Coding" [1]. In addition it describe an organization of FTP site were Poznan Street and Poznan CarPark sequences can be found.

2 Experiments conditions

Experiments were performed basing on W11831 [1] guidelines, and with the use of standard configuration file provided by the reflector. Used configuration file can be found in the Appendix as well on multimedia.edu.pl FTP site.

Three view case:

- Original reference texture data for views 3, 4 and 5 of "Poznan_Street" and "Poznan CarPark" sequence were compressed using JMVM software version 8.3.1 with redefined in [1] QP values. GOP length was set to 12 frames, to comply with the requirement of at least 0.5 second GOP length (Poznan sequences are a 25 fps sequences)
- Depth maps for views 3, 4 and 5, were compressed using JMVM software version 8.3.1 with predefined in [1] QP values (called QD). GOP length was set to 12 frames.
- Reconstructed texture and depth data were fed to the view synthesis software VSRS version 3.5, together with camera system parameters and Znear, Zfar values to recreate view 3.5.

- Synthesized view 3.5 was comparsed in terms of PSNR with view 3.5 synthesized using uncompressed data.

Used test condition are summarized in Table 1.

Table 1. Test Condition

Coding Software	JMVC 8.3.1	
Test Sequence	Poznan_Street	Poznan CarPark
Frame Range	150-399	200-449
Frame Rate	25	
GOP Size	12	
View Synthesis Software	VSRS 3.5	

3 Results

3.1 Three view case:

For the 3-view configuration results are shown in table 2, additionally we will bring extra rate points for Rx1..Rx4 as in Table 3.

Table 2: Poznan Street rate points for the 3-view configuration

	Target bitrate	**QP**	**QD**	**Tot. bitrate (kbps) Poznan Street**
R1	0.75 Mbit	42	44	762
R2	1.15 Mbit	40	46	887
R3	1.50 Mbit	37	37	1405
R4	4.00 Mbit	31	25	3942

Table 3: Poznan Street additional rate points for the 3-view configuration

	Target bitrate	**QP**	**QD**	**Tot. bitrate (kbps) Poznan Street**
Rx1	0.75 Mbit	40	42	751
Rx2	1.15 Mbit	37	40	1059
Rx3	1.50 Mbit	35	35	1421
Rx4	4.00 Mbit	28	28	3840

4 Conclusions

4.1. Three view case

- Required bitrates are higher than for other sequences, due to higher resolution and complicated depth structure.

5 Bitstream location

All bit streams have been uploaded on our FTP site: ftp://multimedia.edu.pl/3DV/ in directory: \5-Compresion\3-view\
In the Poznan_Street and Poznan_CarPark directories there are subdirectories witch respect each rate point from R1 to R4.

ftp.multimedia.edu.pl	
5-Compressed	Compressed bitstream with reconstructed synthesis
2-view	Two view case
3-view	Three view case
Poznan_Street	
R1-42-44	First rate point directory
Bitstream	MVC bitstream with MVC configuration file
Rec	Reconstructed views and depths
Synth	Synthesised view
R2	
R3	
R4	
UnCompress	
Poznan_CarPark	

Each rate point directory have following structure:

Bitstream directory contains MVC bitstreams both for texture and depth encoded with specific QP and QD values indicated in ratepoint directory name as well in individual bitstream file name. Along with bitstream directory contained MVC configuration file and batch file that produced those bitstreams.
Rec directory contains reconstructed views and depth maps
Synth directory contains synthesized views in positions provided in [1] along with VSRS configuration file and bath file that was used to produce those synthesized views.

6 References

[1] "Description of Exploration Experiments in 3D Video Coding" MPEG 2010/W11831, Daegu, South Korea, January 2011.

[2] M. Domański, T. Grajek, K. Klimaszewski, M. Kurc, O. Stankiewicz, J. Stankowski, K. Wegner, "Poznań Multiview Video Test Sequences and Camera Parameters", ISO/IEC JTC1/SC29/WG11 MPEG 2009/M17050, Xian, China, October 2009.

Appendix : MVC Configuration files

Following configuration file for **3-view** case can be found on FTP site multimedia.edu.pl in directory \5-Compressed\3-view\ and it is identical (expect file names and QP values) with configuration file sent over the reflector.

```
# JMVM Configuration File in MVC mode
```

```
#
#============== GENERAL ====================================
InputFile               ..\..\..\data\texture\Poznan_Street_00_1920x1088_rec_cam      # input file
OutputFile              Poznan_Street_00_1920x1088_tbit_cam    # bitstream file
ReconFile               Rec\Poznan_Street_00_1920x1088_rec_cam     # reconstructed file
MotionFile              Mot\Poznan_Street_00_1920x1088_mot_cam     # motion information file
SourceWidth             1920        # input  frame width
SourceHeight            1088        # input  frame height
FrameRate               25.0        # frame rate [Hz]
FramesToBeEncoded       250         # number of frames
#
#====================== CODING ================================================
SymbolMode              1           # 0=CAVLC, 1=CABAC
FRExt                   1           # 8x8 transform (0:off, 1:on)
BasisQP                 42          # Quantization parameters
#
#====================== STRUCTURE =============================================
GOPSize                 12              # GOP Size (at maximum frame rate)
IntraPeriod             12              # Anchor Period
NumberReferenceFrames   2           # Number of reference pictures
InterPredPicsFirst      1           # 1 Inter Pics; 0 Inter-view Pics
DeltaLayer0Quant        0           # differential QP for layer 0 #
DeltaLayer1Quant        3           # differential QP for layer 1 #
DeltaLayer2Quant        4           # differential QP for layer 2 #
DeltaLayer3Quant        5           # differential QP for layer 3 #
DeltaLayer4Quant        6           # differential QP for layer 4 #
DeltaLayer5Quant        7           # differential QP for layer 5 #
#PicOrderCntType         0          # Picture order count type (0 or 2)
#
#============================== MOTION SEARCH ==================================
SearchMode              4           # Search mode (0:BlockSearch, 4:FastSearch)
SearchFuncFullPel       3           # Search function full pel
                                    #   (0:SAD, 1:SSE, 2:HADAMARD, 3:SAD-YUV)
SearchFuncSubPel        2           # Search function sub pel
                                    #   (0:SAD, 1:SSE, 2:HADAMARD)
SearchRange             96          # Search range (Full Pel)
BiPredIter              4           # Max iterations for bi-pred search
IterSearchRange         8           # Search range for iterations (0: normal)
#
#============================== LOOP FILTER ====================================
LoopFilterDisable       0           # Loop filter idc (0: on, 1: off, 2:
                                    #   on except for slice boundaries)
LoopFilterAlphaC0Offset 0           # AlphaOffset(-6..+6): valid range
LoopFilterBetaOffset    0           # BetaOffset (-6..+6): valid range
#
#============================== WEIGHTED PREDICTION ============================
WeightedPrediction      0           # Weighting IP Slice (0:disable, 1:enable)
WeightedBiprediction    0           # Weighting B  Slice (0:disable, 1:explicit,
                                                          2:implicit)
#
#============================== NESTING SEI MESSAGE ============================
NestingSEI              0           #(0: NestingSEI off, 1: NestingSEI on)
SnapShot                0           #(0: SnapShot off, 1: SnapShot on)
#========================== ACTIVE VIEW INFO SEI MESSAGE ========================
ActiveViewSEI           0           #(0: ActiveViewSEI off, 1: ActiveViewSEI on)
#====================== VIEW SCALABILITY INFOMATION SEI MESSAGE ==================
ViewScalInfoSEI         0           #(0: ViewScalSEI off, 1: ViewScalSEI on)
#
#====================== MULTIVIEW SCENE INFORMATION SEI MESSAGE ==================
MultiviewSceneInfoSEI         1 #(0: off, 1: on)
MaxDisparity                  80
#==================MULTIVIEW ACQUISITION INFOMATION SEI MESSAGE ================
MultiviewAcquisitionInfoSEI   0 #(0: off, 1: on)
AcquisitionInfoFile           Camera_ballroom.cfg
#
#
#=================== PARALLEL DECODING INFORMATION SEI Message ==================
PDISEIMessage           0           # PDI SEI message enable (0: disable, 1:enable)
PDIInitialDelayAnc      2           # PDI initial delay for anchor pictures
PDIInitialDelayNonAnc   2           # PDI initial delay for non-anchor pictures
#
```

```
NumViewsMinusOne           2          # (Number of view to be coded minus 1)
ViewOrder                3-5-4      # (Order in which view_ids are coded)
#
View_ID        3          # (view_id of a view 0 - 1024)
Fwd_NumAnchorRefs      0          # (number of list_0 references for anchor)
Bwd_NumAnchorRefs      0          # (number of list 1 references for anchor)
Fwd_NumNonAnchorRefs    0          # (number of list 1 references for non-anchor)
Bwd_NumNonAnchorRefs    0          # (number of list 1 references for non-anchor)
#
View_ID                  5
Fwd_NumAnchorRefs       1
Bwd_NumAnchorRefs       0
Fwd_NumNonAnchorRefs     1
Bwd_NumNonAnchorRefs     0
Fwd_AnchorRefs          0 3
Fwd_NonAnchorRefs        0 3
#
View_ID                  4
Fwd_NumAnchorRefs       1
Bwd_NumAnchorRefs       1
Fwd_NumNonAnchorRefs     1
Bwd_NumNonAnchorRefs     1
Fwd_AnchorRefs          0 3
Fwd_NonAnchorRefs        0 3
Bwd_AnchorRefs          0 5
Bwd_NonAnchorRefs        0 5
```