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ISO/IEC JTC1/SC29/WG11  
CODING OF MOVING PICTURES AND AUDIO**

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**Title: 3DV EE4 Results on Newspaper**

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## **1. Introduction**

This document reports experimental results of EE4 on 'Newspaper' sequence in response to N11477 [1]. Since we extended the frame range of 'Newspaper' sequence 200 to 300 described in M18511 [2], accordingly we conducted an EE4 experiment with the input data. We selected four combinations of QP of 'Newspaper' sequence according to the recommended target bitrates, and we prepared the viewing materials for each rate point.

Table 1. Coding conditions

Reference software		JMVC 7.0
GOP size		15
Number of frames		300
Search range		96
View number	2-view	4, 6
	3-view	2, 4, 6

## **2. 2-view Configuration**

We selected the best combinations of QPs for color and depth sequences based on the target bit rates; 0.375, 0.5, 0.75, 1.25 Mbps for 'Newspaper'. In the case of 2-view configuration, the total bit rate is calculated by

$$\text{Total bit rate} = \text{Rate}(L\_color) + \text{Rate}(R\_color) + \text{Rate}(L\_depth) + \text{Rate}(R\_depth)$$

Table 2 shows the total bit rates and PSNR of synthesized images for the 2-view configuration. The synthesis results for View3 are obtained by the decoded pairs of reconstructed color and depth files. We allowed 5% margin for each target bitrates.

Table 2. Total bit rates and PSNR of synthesized images for 2-view configuration

Target Bit rates (Mbps)	Color		Depth		Total bit rate (kbps)	PSNR of syn. for View3 (dB)
	QP	Bit rate (kbps)	QP	Bit rate (kbps)		
0.375	42	303.13	46	84.97	388.10	29.42
0.5	40	367.95	41	157.27	525.22	30.33
0.75	36	553.71	38	225.55	779.26	31.47
1.25	32	867.66	35	330.75	1198.41	32.23

### 3. 3-view Configuration

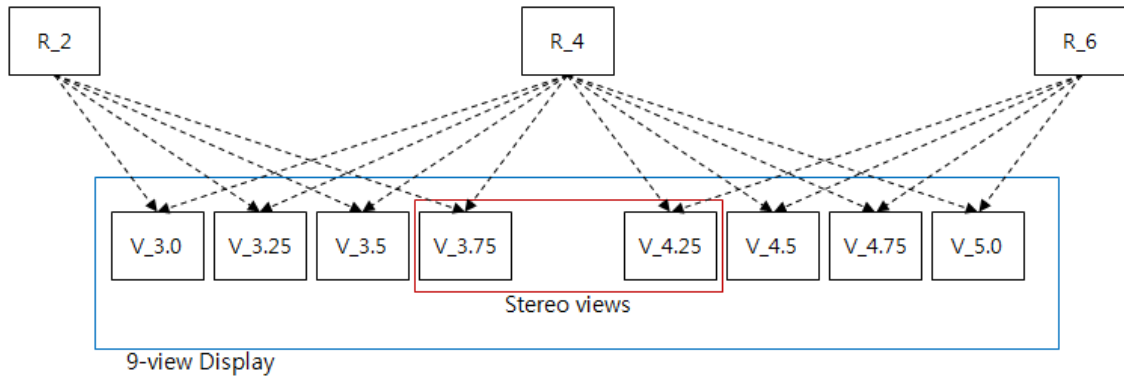
In the case of 3-view configuration, coding experiments are performed based on the target bit rates; 0.5, 0.7, 1.0, 1.35 Mbps for 'Newspaper'. The total bit rate is obtained by

$$\text{Total bit rate} = \text{Rate(L\_color)} + \text{Rate(C\_color)} + \text{Rate(R\_color)} + \text{Rate(L\_depth)} + \text{Rate(C\_depth)} + \text{Rate(R\_depth)}$$

Table 3 describes the total bit rates and PSNR of synthesized images for 3-view configuration. The synthesis results for View3 are obtained by the decoded pairs of reconstructed color and depth files. Figure 1 explains the generation of intermediate views for both stereo and 9-view displays.

Table 3. Total bit rates and PSNR of synthesized images for 3-view configuration

Target Bit rates (Mbps)	Color		Depth		Total bit rate (kbps)	PSNR of syn. for View3 (dB)
	QP	Bit rate (kbps)	QP	Bit rate (kbps)		
0.5	44	404.14	49	122.50	525.64	28.69
0.7	41	530.71	43	204.22	734.93	29.76
1.0	37	799.86	42	226.82	1026.68	30.59
1.35	34	1093.60	40	282.01	1375.61	31.04



#### 4. Conclusion

In this contribution, we have reported the coding results on ‘Newspaper’ sequence for the 3D video coding. According to the target bitrates, we selected proper QP sets showing best rendering quality. We also reported the synthesis results for the best combinations of QPs. We have confirmed that the quality drop of the synthesized image is clear in visual. We are ready to demonstrate the synthesized video for each target bit rates during 94<sup>th</sup> Guangzhou meeting.

#### 5. Acknowledgements

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#### 6. References

- [1] ISO/IEC JTC1/SC29/WG11 “Description of Exploration Experiments in 3D Video Coding,” N11477, July 2010.
- [2] ISO/IEC JTC1/SC29/WG11 “3DV EE1 Results on Newspaper,” M118511, October 2010.