

# **EE1-Related :Harmonization UW Prediction method with improved PDPC**

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**Aug. 2017**

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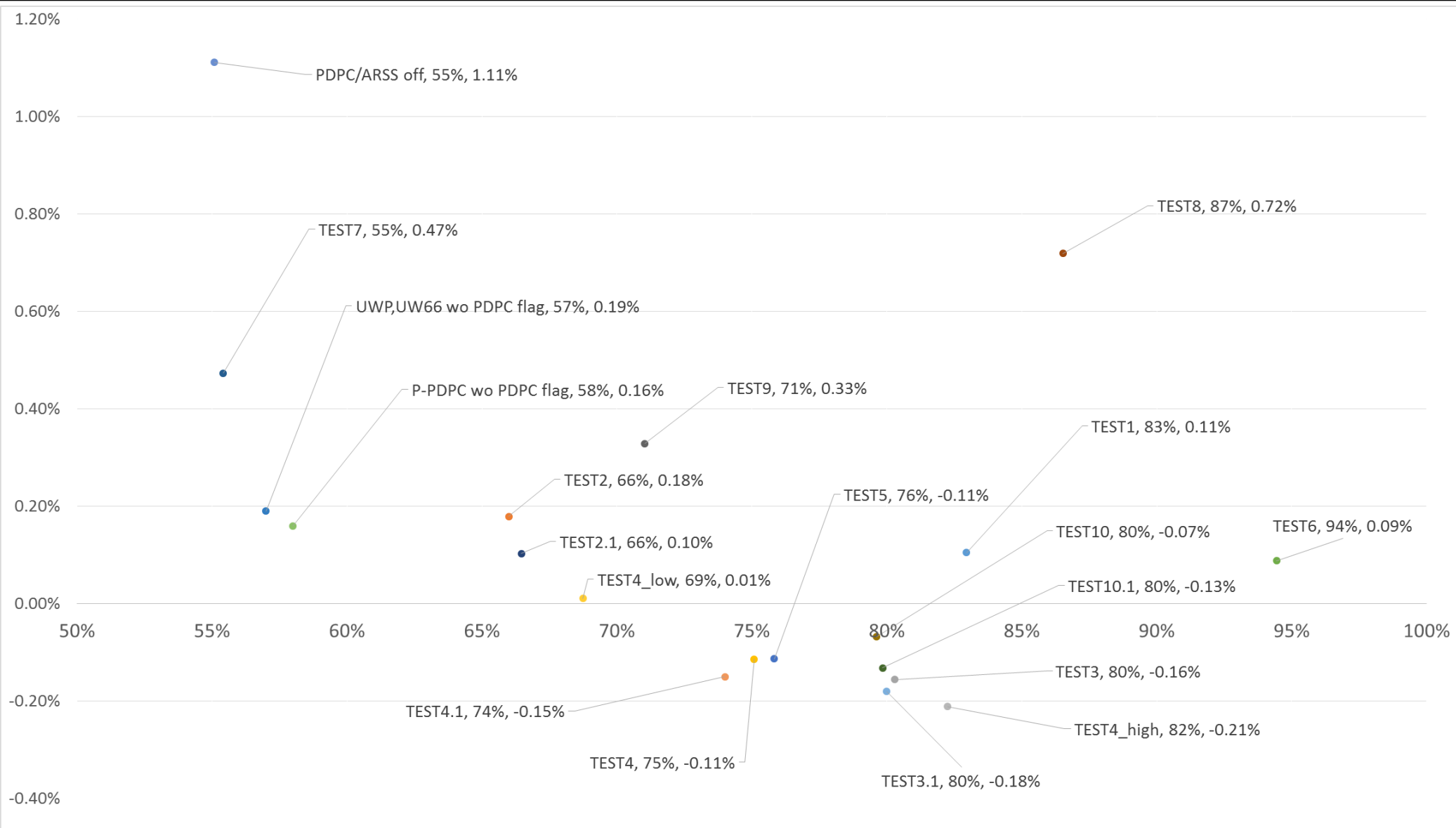
# Summary

- **Submit additional trade-point at EE1**
- **Harmonize UW prediction method with improved PDPC method(PDPC-L)**

	Feature description	Comparison point	Remark
Test A	UWP+UW66, PDPC for other intra mode, PDPC-L, ARSS off, NSST+PDPC (Test3 in EE1 : P-PDPC, PDPC-L, ARSS off, NSST+PDPC)	Test3 in EE1	Test 3.1
Test B	UWP+UW66, PDPC for other intra mode, PDPC-L, ARSS off (Test4 in EE1 : P-PDPC, PDPC-L, ARSS off)	Test4 in EE1	Test 4.1

- **Bottom right pixel change from observation on UW technology**
- **Crosscheck**
  - JVET\_G0126 (Sharp Japan)

# Summary



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- Test 3 in EE1 vs Test A

	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	101%	97%	-0.10%	-0.13%	-0.11%
Class A2	100%	98%	-0.06%	0.02%	-0.09%
Class B	101%	97%	-0.01%	-0.07%	-0.03%
Class C	100%	99%	0.00%	-0.11%	-0.01%
Class D	101%	100%	0.01%	-0.23%	-0.44%
Class E	102%	98%	0.06%	-0.02%	0.09%
Class F	102%	97%	-0.05%	0.16%	0.03%
All	101%	98%	-0.02%	-0.09%	-0.10%

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- Test 4 in EE1 vs Test B

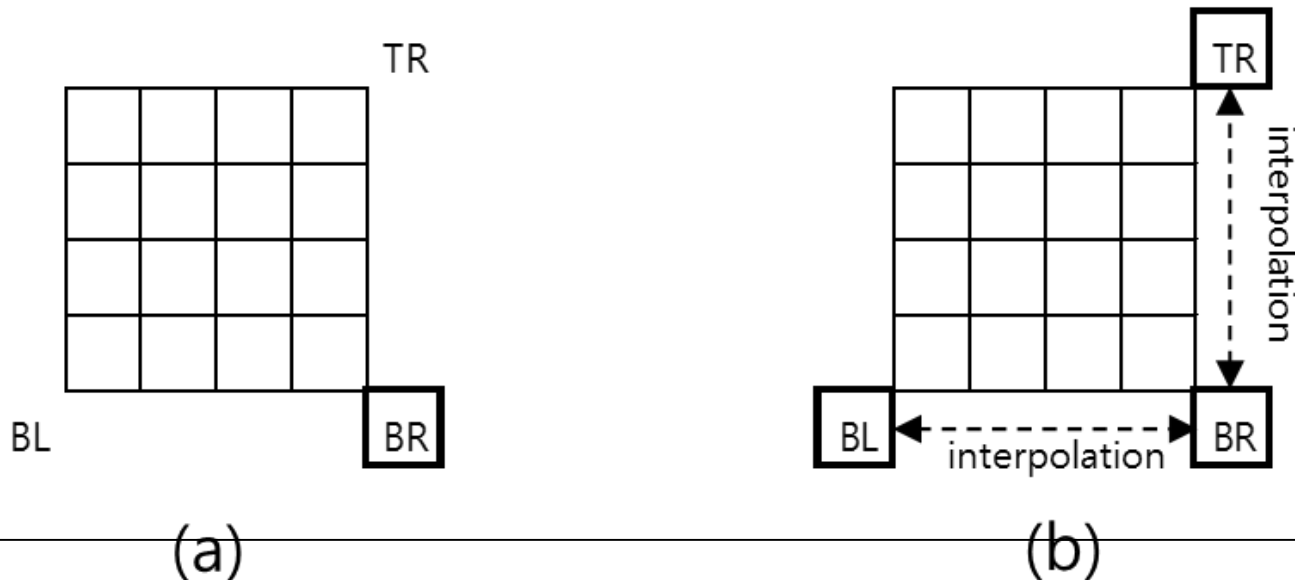
	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	99%	100%	-0.11%	-0.23%	-0.13%
Class A2	98%	99%	-0.08%	0.06%	-0.11%
Class B	98%	98%	-0.02%	-0.13%	-0.07%
Class C	100%	100%	-0.02%	-0.02%	-0.01%
Class D	101%	99%	0.00%	-0.03%	-0.19%
Class E	99%	99%	0.04%	-0.06%	0.06%
Class F	100%	99%	-0.08%	-0.10%	0.15%
All	99%	99%	-0.03%	-0.07%	-0.08%

# Bottom right pixel change for non-square block

- Current UW Planar generate bottom right pixel by equation (1)
- Equation(1) could not reflect different length about width and height for non-square block.
- Studied changing equation (2) from (1) for non-square block.

$$BR = ((width * BL) + (height * TR)) / (width + height) \dots\dots\dots eq.(1)$$

$$BR = ((height * BL) + (width * TR)) / (width + height) \dots\dots\dots eq.(2)$$



- Experiment result of Test C.

	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	80%	100%	-0.42%	-0.24%	-0.17%
Class A2	82%	100%	-0.14%	0.55%	0.43%
Class B	80%	99%	-0.07%	0.28%	0.33%
Class C	79%	100%	0.06%	0.61%	0.47%
Class D	80%	100%	-0.28%	0.05%	0.12%
Class E	80%	101%	-0.18%	0.29%	0.29%
Class F	81%	99%	-0.29%	-0.06%	0.31%
All	80%	100%	-0.17%	0.26%	0.25%

- Experiment result of Test D.

	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	75%	99%	-0.28%	-0.40%	-0.25%
Class A2	76%	98%	-0.08%	0.34%	0.24%
Class B	74%	99%	0.00%	0.11%	0.20%
Class C	73%	100%	0.00%	0.30%	0.34%
Class D	74%	100%	-0.28%	0.03%	0.00%
Class E	73%	100%	-0.18%	0.18%	0.20%
Class F	74%	99%	-0.34%	-0.09%	0.10%
All	74%	99%	-0.13%	0.09%	0.12%



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Question and Comment?

- Experiment result of Test A.

	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	80%	100%	-0.43%	-0.31%	-0.19%
Class A2	82%	100%	-0.19%	0.49%	0.35%
Class B	80%	99%	-0.08%	0.23%	0.26%
Class C	79%	100%	0.06%	0.49%	0.52%
Class D	80%	100%	-0.28%	-0.01%	-0.11%
Class E	80%	101%	-0.15%	0.21%	0.28%
Class F	81%	99%	-0.29%	-0.03%	0.25%
All	80%	100%	-0.18%	0.18%	0.19%

- Experiment result of Test B.

	Encoding T.	Decoding T.	BD-rate		
			Y	U	V
Class A1	75%	100%	-0.29%	-0.43%	-0.29%
Class A2	76%	99%	-0.15%	0.32%	0.11%
Class B	74%	98%	-0.03%	0.10%	0.14%
Class C	73%	100%	0.00%	0.31%	0.37%
Class D	74%	99%	-0.29%	-0.11%	0.00%
Class E	74%	99%	-0.16%	0.06%	0.23%
Class F	75%	99%	-0.33%	-0.23%	0.25%
All	74%	99%	-0.15%	0.04%	0.09%