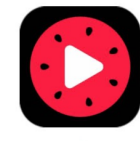


JVET-Y0062

Non-EE2: Cross-component Palette Coding

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Introduction:

- VVC and ECM employ separate palette coding for luma and chroma components under dual-tree structure
- Ignores cross-component correlations
- Obviously need methods to bridge the gap

Proposed Method:

Cross-Component Palette Coding (CC-PLT):

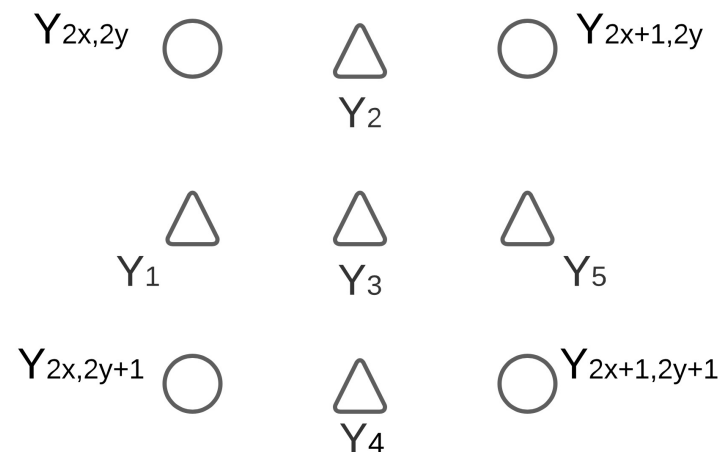
- Step1: Create a cross-component look-up table (CC-LUT) from reconstructions:
 - Given a luma sample, record its corresponding chroma value
 - Could be derived from multiple reference lines

- Step2: Coding current chroma block:
 - Look for collocated luma value (Y_c) in the LUT and fetch corresponding chroma value
 - If not found, search for $Y_c \pm 1$, $Y_c \pm 2$ and $Y_c \pm 3$ in the order and get chroma value
 - If still a miss, use average chroma as the mapping output

- Step3: Mapped chroma sample value is used as the reconstructed value.

MULTI-FILTER FOR DOWNSAMPLING

- Five additional luma down-sampling filters for 4:2:0 format



- Encoder tries the candidate down-sampling filters and signals an index of the best filter to the decoder.

SIMULATION RESULTS

- Tool-off test: (ECM 3.1 as the anchor)
- CC-LUT is derived based on eight chroma reference lines

	All Intra Main10				
	Over ECM-3.1 (with PLT on)				
	Y	U	V	EncT	DecT
Class F	-0.20%	-0.44%	-0.36%	105%	102%
Class TGM	-1.37%	-1.08%	-1.68%	105%	103%
	Random Access Main 10				
	Over ECM-3.1 (with PLT on)				
	Y	U	V	EncT	DecT
Class F	-0.23%	-0.35%	-0.19%	104%	101%
Class TGM	-0.34%	-0.35%	-0.56%	103%	101%

- Note: PLT is turned on in anchor

CONCLUSIONS

- CC-PLT brings significant coding gains with a negligible complexity increase.
- It is recommended to study CC-PLT in EE2.