

A decorative geometric shape, resembling a stylized star or a series of overlapping triangles, is located on the left side of the slide. It is rendered in a light grey color and has a semi-transparent appearance, allowing the background to be seen through it. The shape is composed of several sharp points and flat surfaces, creating a complex, crystalline form. It is positioned to the left of the main title, adding a modern and abstract touch to the slide's design.

# JVET-N0162

## Size restriction for CCLM

**Fangdong Chen** and Li Wang

Hikvision

# Introduction

---

## ■ Motivation

- Separate luma chroma partitioning tree introduces a long latency for chroma intra prediction when the CCLM is on.

## ■ Restriction 1

- CCLM is disabled for 2x2 chroma blocks

## ■ Restriction 2

- CCLM is disabled for chroma blocks with size larger or equal to 32x32

## ■ Restriction 3

- CCLM is disabled for 2x2, 2x4, 4x2 chroma blocks

# Experimental Results

## ■ Results of test A (Restriction 1)

	All Intra Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.01%	0.01%	0.03%	101%	100%
Class A2	0.00%	0.08%	0.00%	100%	97%
Class B	0.00%	-0.02%	0.03%	100%	100%
Class C	0.00%	0.11%	0.09%	103%	106%
Class E	-0.01%	-0.03%	-0.01%	100%	104%
<b>Overall</b>	0.00%	0.03%	0.03%	101%	101%
Class D	0.00%	0.22%	0.13%	101%	104%
Class F	0.03%	0.13%	0.15%	96%	94%
	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	-0.02%	0.04%	0.09%	99%	98%
Class A2	-0.01%	0.01%	0.03%	99%	97%
Class B	-0.01%	0.01%	-0.06%	96%	87%
Class C	0.01%	0.16%	-0.09%	100%	101%
Class E					
<b>Overall</b>	0.00%	0.06%	-0.02%	98%	95%
Class D	0.05%	0.07%	0.02%	101%	102%
Class F	-0.02%	0.06%	0.14%	99%	97%

Thank LGE for the cross-checking!

# Experimental Results

## ■ Results of test B ( Restriction 2 )

	All Intra Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.20%	1.36%	0.83%	100%	100%
Class A2	0.02%	0.50%	0.20%	100%	100%
Class B	0.03%	0.21%	0.58%	100%	100%
Class C	0.02%	0.03%	0.03%	101%	100%
Class E	0.00%	0.30%	0.07%	101%	100%
<b>Overall</b>	0.05%	0.42%	0.35%	100%	100%
Class D	0.01%	0.06%	0.03%	100%	99%
Class F	0.04%	0.15%	0.28%	100%	98%
	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.09%	1.01%	0.93%	99%	100%
Class A2	-0.01%	0.29%	0.14%	100%	99%
Class B	0.00%	0.23%	0.23%	100%	101%
Class C	0.02%	-0.01%	-0.26%	100%	101%
Class E					
<b>Overall</b>	0.02%	0.33%	0.22%	100%	101%
Class D	-0.02%	-0.08%	0.02%	100%	103%
Class F	-0.02%	0.06%	0.12%	100%	102%

# Experimental Results

## ■ Results of test C ( Restriction 3 )

	All Intra Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.02%	0.16%	0.13%	101%	100%
Class A2	0.02%	0.27%	0.16%	100%	99%
Class B	-0.01%	0.13%	0.18%	101%	99%
Class C	0.03%	0.70%	0.83%	101%	102%
Class E	0.00%	0.04%	-0.06%	101%	103%
<b>Overall</b>	0.01%	0.27%	0.27%	101%	101%
Class D	0.05%	0.84%	1.07%	101%	104%
Class F	0.09%	0.79%	0.99%	100%	98%
	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.04%	0.01%	0.15%	100%	100%
Class A2	-0.02%	0.18%	0.09%	100%	98%
Class B	-0.01%	0.26%	0.20%	100%	99%
Class C	0.01%	1.04%	1.09%	100%	102%
Class E					
<b>Overall</b>	0.00%	0.40%	0.41%	100%	100%
Class D	0.02%	1.00%	1.35%	101%	102%
Class F	0.03%	0.73%	0.97%	100%	101%

# Conclusion

---

- Propose to modify the enabling condition for DMVR and BDOF
  - Restriction 1: CCLM is disabled for 2x2 chroma blocks (0.00%, 0.03%, 0.03% loss on Y,U,V components for AI)
  - Restriction 2: CCLM is disabled for chroma blocks with size larger or equal to 32x32 (0.05%, 0.42%, 0.35% loss on Y,U,V components for AI)
  - Restriction 3: CCLM is disabled for 2x2, 2x4, 4x2 chroma blocks (0.01%, 0.27%, 0.27% loss on Y,U,V components for AI)
- Based on the above results, it is suggested to adopt Restriction 1/3 into the VTM.

**Thank you !**

A decorative horizontal bar at the bottom of the slide, consisting of a red segment on the left and a grey segment on the right.