

JVET-G0052

**AHG8: A study on quality impact
of coded picture resolution in 360
video coding**

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Motivation

- Study the quality impact of coded picture resolution in 360 video coding
- Projection formats used in test
 - ERP (Equirectangular projection)
 - AEP (Adjusted Equal Area Projection)
 - ACP (Adjusted Cube Map Projection)
 - RSP (Rotated Sphere Projection)

Coded Picture Resolution Settings

- Software HM16.15 + 360Lib-3.0, JVET 360 CTC
 - A fix was integrated to resolve issues of RSP coded in high resolutions
- Only results of 8K input are of interest

Coded picture resolution settings	ERP/AEP		ACP/RSP		Number of active sample ratio relative to CTC (for 8K input)
	8K Input (FW x FH)	4K Input (FW x FH)	8K Input (FW x FH)	4K Input (FW x FH)	
Low resolution (lres)	3568 x 1784	2896 x 1448	1024 x 1024	832 x 832	~75%
CTC resolution (ctc)	4096 x 2048	3328 x 1664	1184 x 1184	960 x 960	100%
High resolution (hres)	4736 x 2368	3840 x 1920	1368 x 1368	1112 x 1112	~133%
Super resolution (sres)	5792 x 2896	3840 x 1920	1680 x 1680	1112 x 1112	~200%
Ultra resolution (ures)	7096 x 3552	3840 x 1920	2056 x 2056	1112 x 1112	~300%
Full resolution (fres)	8192 x 4096	3840 x 1920	2368 x 2368	1112 x 1112	~400%

Quality Impact of Coded Picture Resolution

- As coded picture resolution increases
 - Compression efficiency of a projection format increases
 - Performance gap between an alternative format and ERP decreases

