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ISO/IEC JTC 1/SC 29/WG 04 MPEG VIDEO CODING

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Title Discussion on changes in MIV CTC
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Abstract

This document presents some thoughts and suggestions for MIV CTC modification. It is intended to be a base to discussion on changing MIV CTC.

1 Test material

Sequences – red ones will be excluded from both mandatory and optional sets for MIV, MIV view, MIV DSDE and best reference

CG, omni	CG, persp	NC
A	G	D
B	I	E
C	J	H
F	O	K
N	R	L
Q		P
X		S
		T
		U
		V
		Y
		Z

Software tools

Update versions.

2 Anchor definition

MIV anchor:

- change A97 to A65 (still multiple GOPs, the same GOP size, shorter estimation, no drawbacks),
- add R0
- add VT code changes,

- modified sequence selection:

mandatory			optional		
CG,	CG,		CG,	CG,	
omni	persp	NC	omni	persp	NC
N	R	S	A	J	E
F	O	D	C	I	L
	G		X		P
			B		Y
					Z
					U

MIV DSDE:

- no changes except for sequence selection:

mandatory			optional		
CG,	CG,		CG,	CG,	
omni	persp	NC	omni	persp	NC
	R	S	A	G	E
	J	D	B	I	P
		L	C	O	U
		Z	X		Y
			F		
			N		

MIV and MIV DSDE anchors:

- could be generated after each meeting (unless no algorithmic changes)
- each proponent can choose the anchor to base their code on (the current one or one of the previous anchors / TMIV versions)

MIV view anchor:

- we propose 3 options:
 - to calculate it once and don't touch unless there are significant rendering changes,
 - to get rid of it completely,
 - to make it more similar to simulcast (no geometry scaling)

best reference:

- no change, calculate it once and don't touch unless there are significant rendering changes,

other anchors?

2.1 Coding of the anchor views

- add start frames for new sequences
- change start frame for Street (no movement for G17 when using current ones) and maybe some others (?)
- set QP values for new sequences

- do we really need 5 rate points? Let's change it to 4.

3 Evaluation of proposals

3.1 *Subjective quality evaluation*

Let's provide ffmpeg commandline for both sbs and non-sbs mp4 videos:

- non-sbs can be used for "real" subjective tests or expert viewing,
- sbs videos can be used for preview purposes, to emphasize quality changes provided by the proposed tool

How many frames for G17 pose traces? We'd say that 300 is ok, but we can say it explicitly.

3.2 *Objective evaluation*

- Is VMAF back? We hope not, but if so, we would need an implementation with configurable startFrame.
- We can update configuration of IV-PSNR, according to our new results providing better correlation with MOS,
- Maybe we can calculate BD-PSNR in addition to BD-rate. It would give us some numbers for cases, where BD-rate cannot be calculated because of non-overlapping curves. And we would have the same number of columns, as currently we have BD-rate high and BD-rate low, and we can reduce number of QPs.

3.3 *Pixel rate evaluation*

- Do we change the pixel rate constraints? and use high instead of low? or maybe just for some content, e.g., Guitarist?

1 Annex

some sequences will be not used in any anchor, so it would be weird to keep them here. However, we probably do not want to remove them completely, so we can split this document into two:

- CTC
- test content used in MIV activities, describing all used content, incl. ChocoFountain, Hall, Breaktime, ChessPieces, and maybe both Magritte versions, MPI sequences and so on.

Another option:

- to have a list of previous sequences with name and citation. We can simply point to the latest previous CTC that still that describes sequence. If a sequence was never used in a MIV CTC, then we probably should not list it, but the criterium could be "sequences previously used in collaborative MIV experiments" to include non-CTC sequences that were used in CE's or EE's.