INTERNATIONAL ORGANISATION FOR STANDARDISATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC1/SC29/WG11
CODING OF MOVING PICTURES AND AUDIO

ISO/IEC JTC1/SC29/WG11 MPEG129/m53053
Apr 2020, Alpbach-online

Source	**Intel, Philips, ETRI, PUT, InterDigital**
Status	**Input document**
Title	**MIV anchors and crosscheck rev1**
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1 Introduction

NB: This rev2 version of the document precises 2 things:

- 2 small fixes have been done in an internal sheet of the rev2 ff excel templates (unchanging the summary report), and in the SD sheet of rf excel templates for some metrics. Use the rev2 version, and the latest version available on the MPEG server in general, in case other small fixes are reported
- In this present document, we claim that the only non alignment with the CTC [1] is in the fact that the 24 fps contents have actually been computed as 30 fps (issue#131). This is not considered as an important issue, and the fix will be done in TMIV5.

The Anchor iteration includes 3 new optional contents PoznanHall, PoznanCarPark and PoznanStreet , bringing the number of contents to 11 among which 4 are optional.

The *Common Test Conditions for Immersive Video* [1] now specify 3 anchors:

a. MIV anchors categorized as A97 when computed on 97 frames,
b. MIV anchors categorized as A17 when computed on 17 frames,
c. MIV view anchors categorized as V17 because computed on 17 frames,

The Excel template file with “ff” radical (full frame) relates to A97 category, while the Excel template file with “rf” radical (reduced frame) relates to A17 and V17 categories. The purpose of A17 is to compare with V17.

Note that although MS-SSIM and VIF metric columns exist in the template sheet, there have been removed from the CTC and do not appear anymore in the summary sheet.

The MIV anchors (for objective evaluation) are based on TMIV 4.0 announced on the MPEG-I Visual reflector in March 2020.

We have divided the work to generate the MIV anchors among 5 participants according to Table 1. Note that content with * are the optional ones.

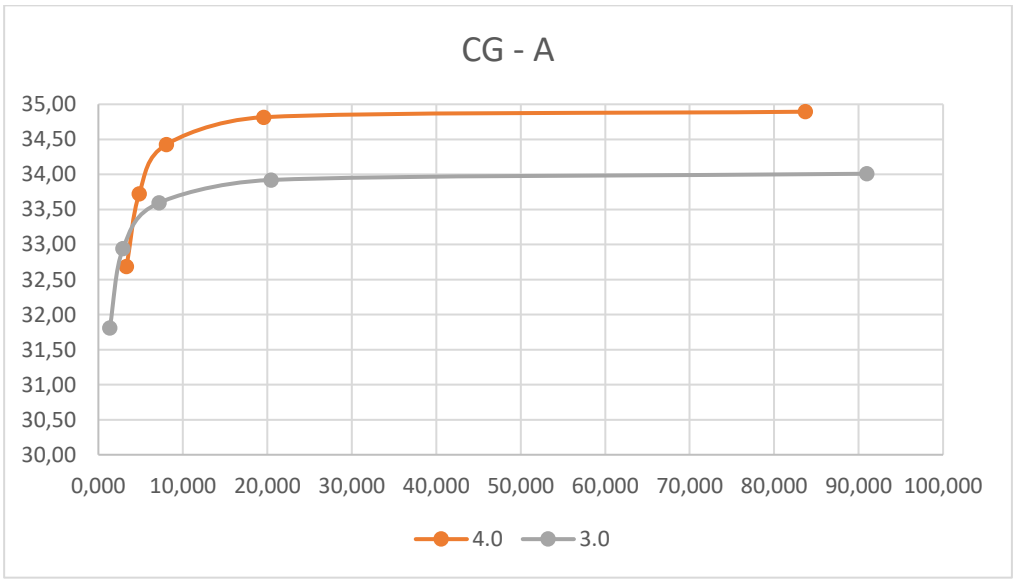
Table 1: Division of anchor generation work

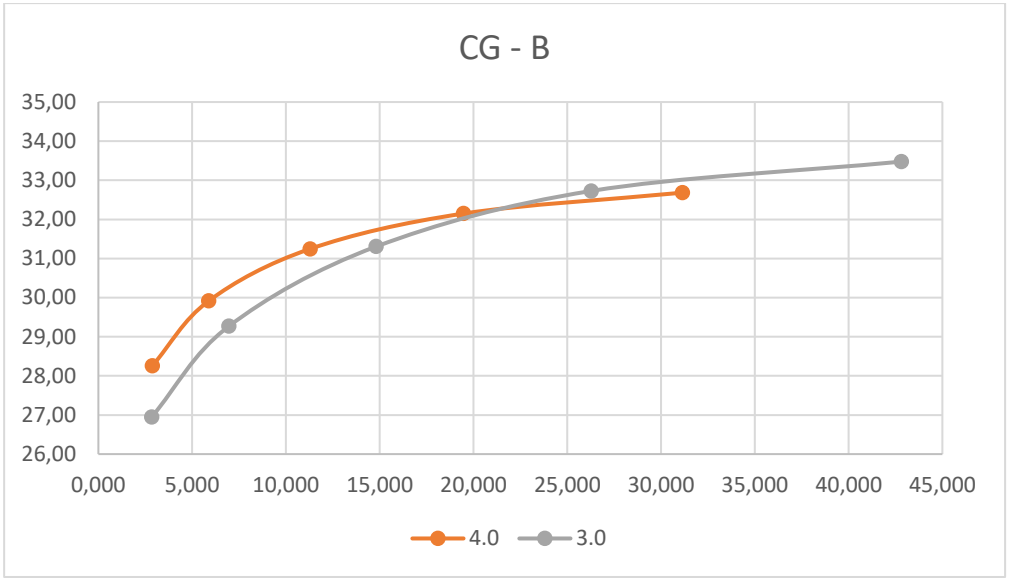
Sequence	Short name	Anchor	Anchor by	Crosscheck by
CG1 – A	SA	a), b) & c)	Philips	IDC
CG1 – B	SB	a), b) & c)	Intel	ETRI
CG1 – C	SC	a), b) & c)	Philips	IDC
CG2 – J	SJ	a), b) & c)	Intel	ETRI
CG1 – N	SN*	a), b) & c)	PUT	Philips
NC1 – D	SD	a), b) & c)	PUT	Philips
NC1 – E	SE	a), b) & c)	ETRI	Intel
NC1 – L	SL	a), b) & c)	ETRI	Intel
NC1-P	SP*	a), b) & c)	IDC	PUT
NC1-U	SU*	a), b) & c)	IDC	PUT
NC1-T	ST*	a), b) & c)	IDC	PUT

The encoding and decoding time is indicated as usual, but it should be clear that the reported figures now come from a set of heterogeneous resources.

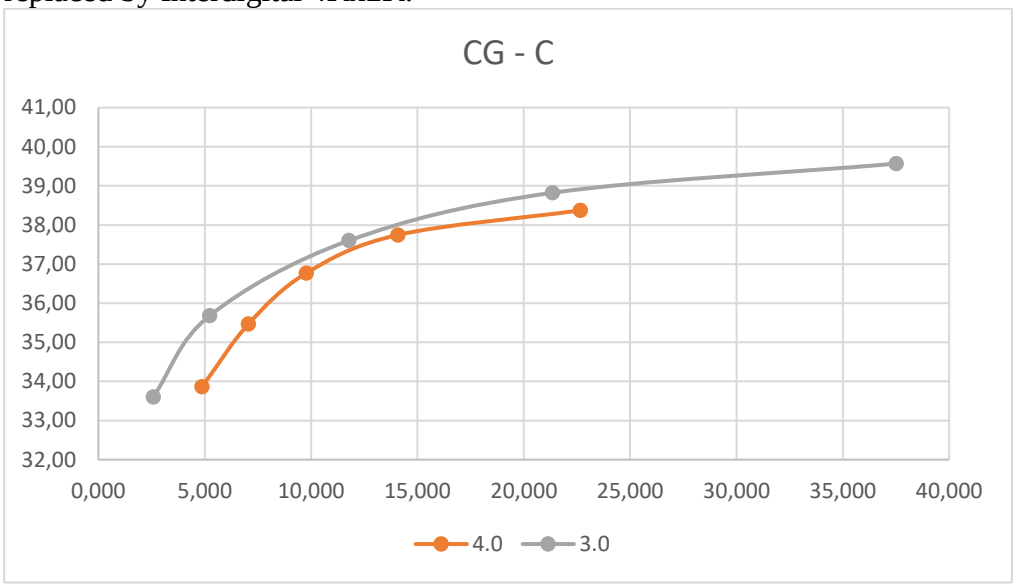
2 Results

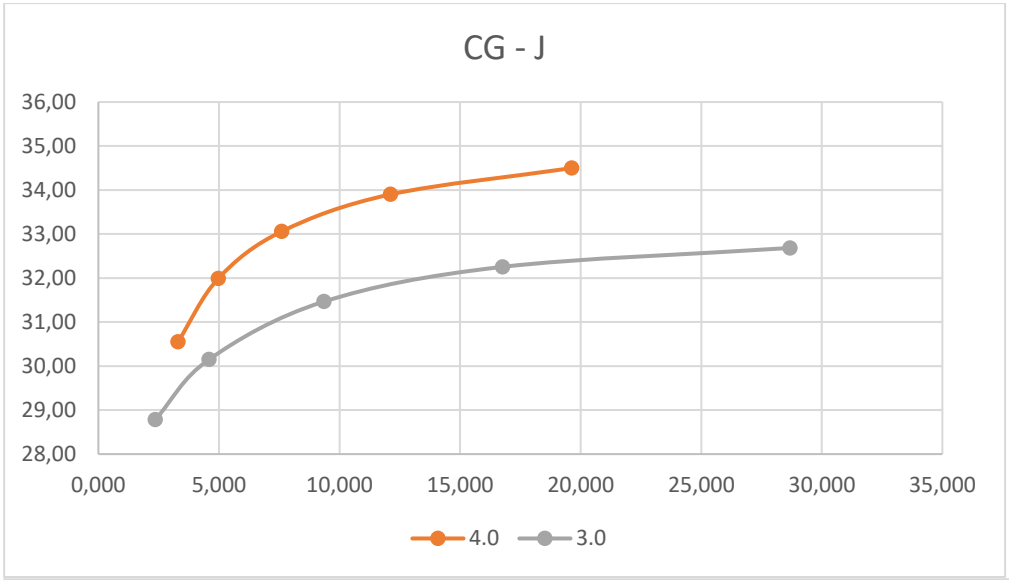
The comparison as regards to Anchor3.0 is not easy as there have been major changes like new Depth QPs, pixel rate reduction related to depth downsizing, content modification, and the adoptions. Anyway, here are curves which shows outperformance of Anchor4.0 as regards to Anchors 3.0 with the exception on C and N:

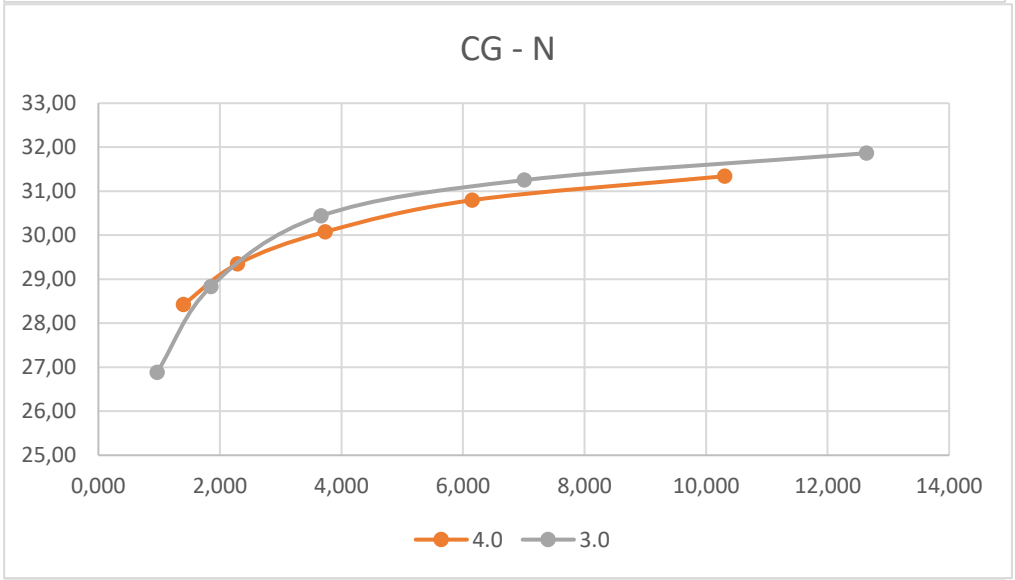


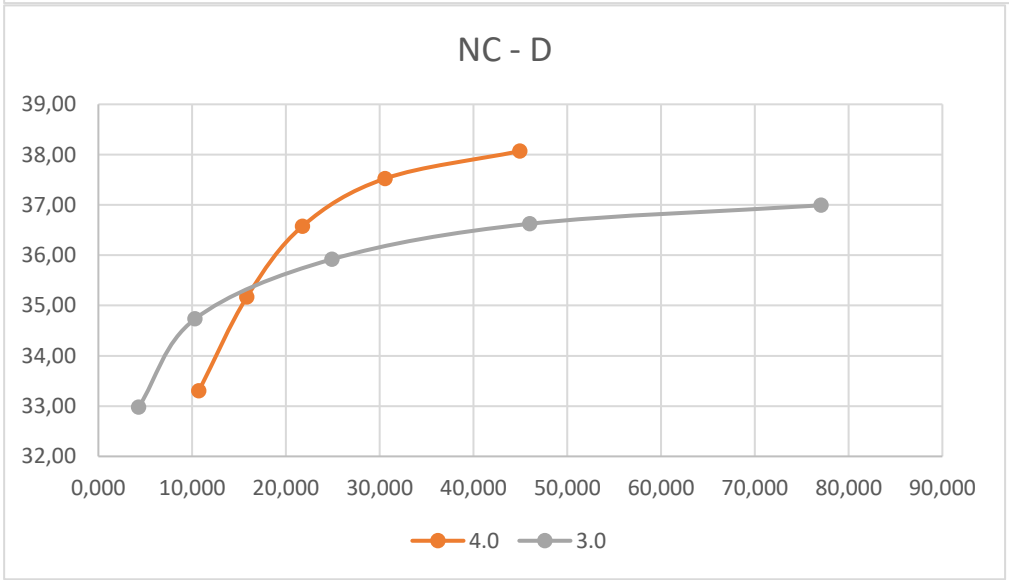


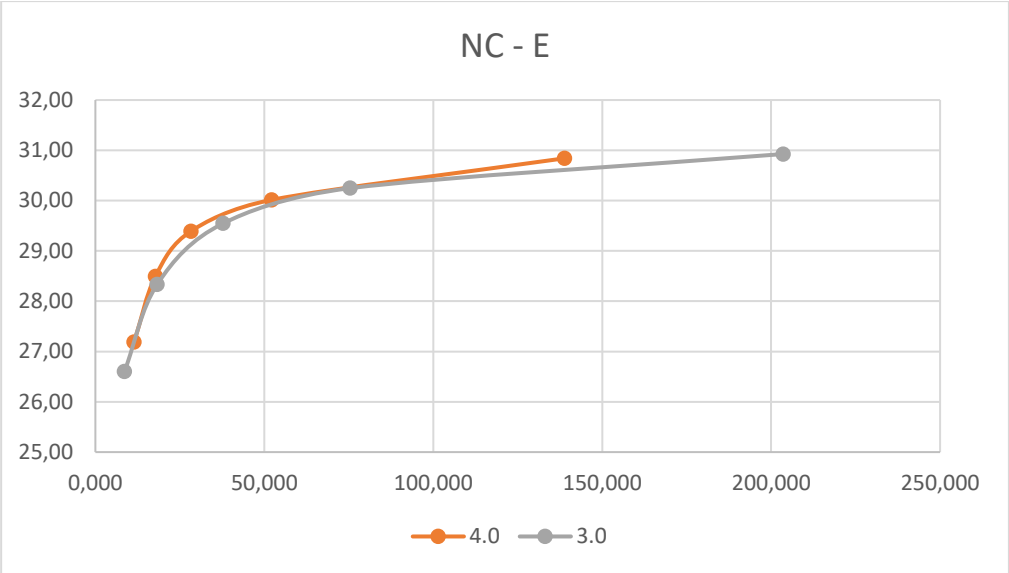
The bitrate reduction here relates to the fact that TechnicolorHijack 4Kx4K views have been replaced by Interdigital 4Kx2K.

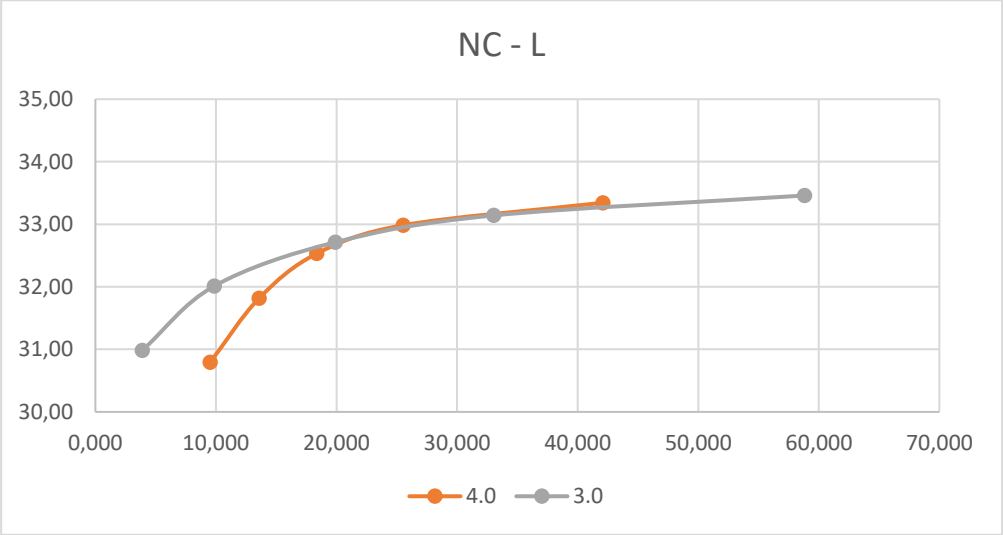



CG - J
36,00
35,00
34,00
33,00
32,00
31,00
30,00
29,00
28,00
0,000
5,000
10,000
15,000
20,000
25,000
30,000
35,000
4.0
3.0


CG - N
33,00
32,00
31,00
30,00
29,00
28,00
27,00
26,00
25,00
0,000
2,000
4,000
6,000
8,000
10,000
12,000
14,000
4.0
3.0


NC - D
39,00
38,00
37,00
36,00
35,00
34,00
33,00
32,00
0,000
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000
90,000
4.0
3.0





3 R97 pose traces

As it is not a big volume of data, all R97 pose traces have been uploaded on mpeg server at location MPEG-I/part12-ImmersiveVideo/Anchor_TMIVv4/R97 pose traces.
These pose traces are informative only.

4 Recommendations

- We recommend that the attached template is used by all proponents.
- We propose that the attached template forms the basis for the next CTC reporting template.

5 Reference

[1] J. Jung, B. Kroon, J. Boyce, M. Domański (Eds) Common Test Conditions for Immersive Video, ISO/IEC JTC1/SC29/WG11 MPEG/N18997, March 2019, Geneva Switzerland