



Overview on MPEG AG 5 activities

Mathias Wien, RWTH Aachen University

ISO/IEC JTC 1/SC 29/AG 5 MPEG Visual Quality Assessment

VQEG meeting Dec. 2025 – Input 232

Outline

- CVQM – Compressed Video for Study of Quality Metrics
- MPEG Multilayer Testing
- CfP Lenslet Video Coding
- (JVET CfE)
- Verification Testing

AG 5: CVQM - Compressed Video for study of Quality Metrics

Presentation at next VQEG meeting

- CVQM-HD ([AG5N150](#))
 - Correlation studies on performance of quality metrics
 - Including per-sequence, per-codec analyses
 - Planned to go into output document
 - Evaluation of metrics on dataset
 - Define procedures, form of reporting
 - Similar activity for JPEG AIC communication on topic started
- CVQM-UHD
 - Viewing completed
- CVQM general
 - 2 contributions related to HDR,
 - HDR could be defined as a new category

Testing MPEG Multilayer video coding technology

- Test plan released as [AG5N160](#) at the Jan'25 Geneva meeting
 - Goal: evaluation of multilayer coding schemes using a comparable baselayer, focus on compression tools
- Bitstreams generated and crosschecked by InterDigital, MediaTek, also crosscheck by Ericsson
- Subjective tests performed at RWTH Aachen University and VABtech.
 - DCR/DSIS protocol
 - Data of both labs merged for final results
 - At least 55 opinion scores recorded per test point (max 59)
 - Data processing according to BT.500
- Output document [AG5N178](#)

Multilayer test dataset

Test sequence & format	Thumbnail	Test sequence & format	Thumbnail
BodeMuseum 3840×2160, 60fps, 600 frames SDR, BT.2020 color f2b01ec32bd014eccc17cc0db069cb734		Metro 3840×2160, 60fps, 600 frames SDR, BT.709 color ed4ac35cd1d659a3b7f8ed846f5be0efe	
OberbaumSpree 3840×2160, 60fps, 600 frames SDR, BT.2020 color a5200ad0aee110ed6bd3c560edd96198		SubwayTree 3840×2160, 60fps, 600 frames SDR, BT.2020 color fc6a517ab5ce9ec0e28dd1c770e51fe8	
WaterFront 3840×2160, 24fps, 240 frames SDR, BT.709 color 1297ba70dea887e8138bb2119581ebc		FootballLargeAdvert 3840×2160, 60fps, 600 frames HLG, BT.2020 color cbb3532a286f568c0b0a32f6986c969e	
H3-AMS01 3840×2160, 60fps, 600 frames HLG, BT.2020 color 02be2d01e46a4d2316fe0e951f94f742		H3-AMS02 3840×2160, 60fps, 600 frames HLG, BT.2020 color d701f761b1f44a687fc51eb8c0ab9fbe	
H3-AMS05 3840×2160, 60fps, 600 frames HLG, BT.2020 color bd26ce99ea7da819d56a1a562e8e48df		WomenFootball 3840×2160, 50fps, 500 frames HLG, BT.2020 color 71cc16a0f97a124b8f64de9aafed0c04	
GreenMountains1 3840×2160, 25fps, 250 frames PQ, BT.2020 color 8e315d6d6a8d6891330008cc84807b0e		KitchenDressin 3840×2160, 60fps, 600 frames PQ, BT.2020 color eefaabe95d4bf35c222973d4407990e	
RiverPlate1 3840×2160, 60fps, 600 frames PQ, BT.2020 color 0d95e0c1d4e559abfb9c56b44f71a5d3		TiergartenParkway 3840×2160, 60fps, 600 frames PQ, BT.2020 color 410e5bb4900840ba3642ba7678c53938	
WalkInPark 3840×2160, 60fps, 600 frames PQ, BT.2020 color 2b9c43c6e0f4b4b251756573ec2792a9			

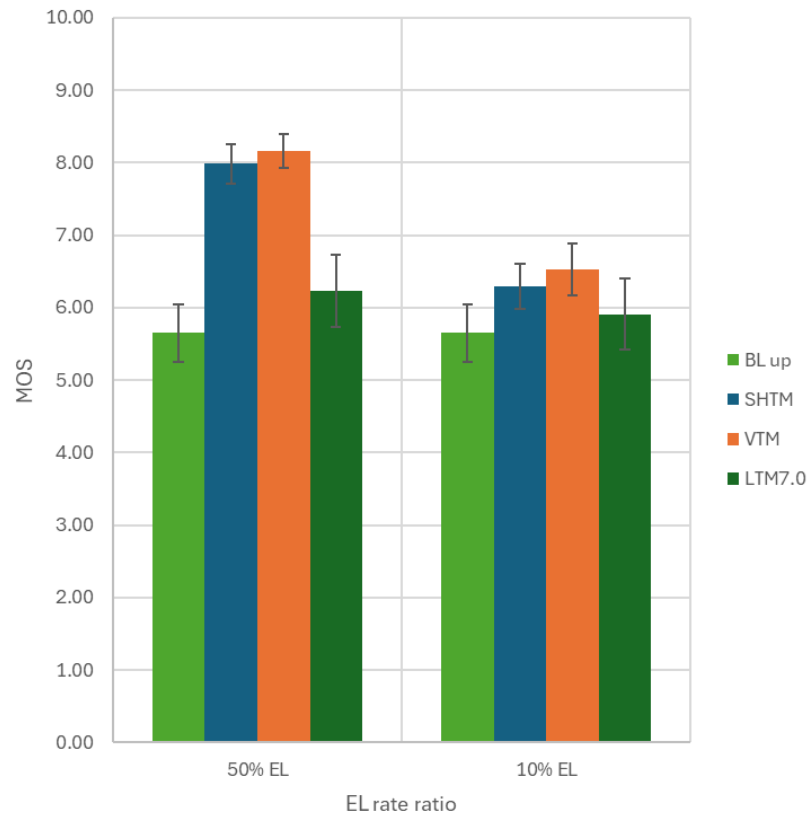
UHD resolution

- 5 sequences SDR
- 5 sequences HDR-HLG
- 5 sequences HDR-PQ

Multilayer test example results

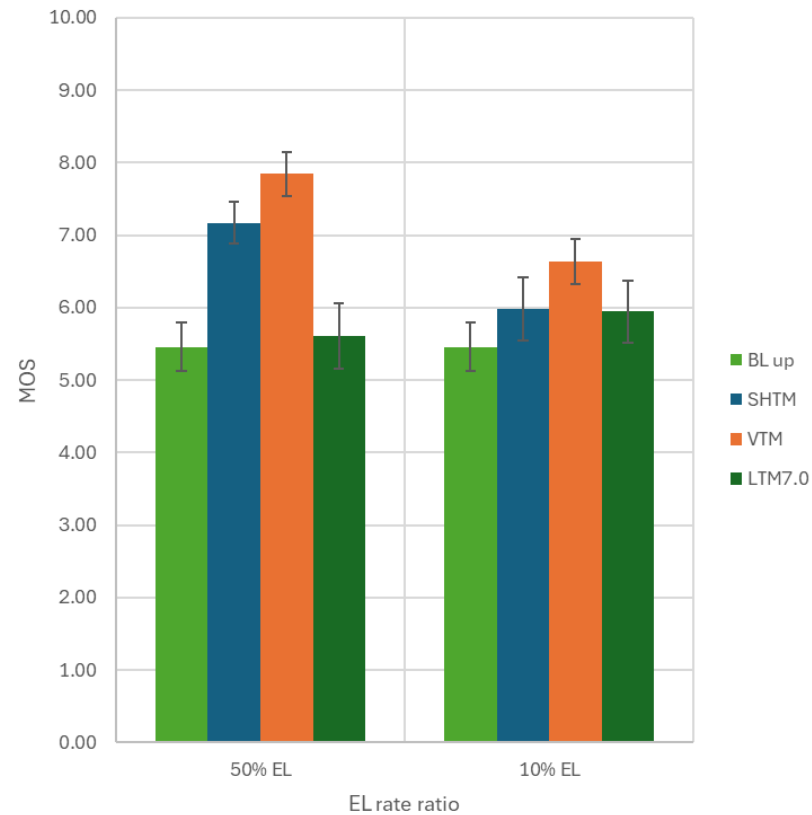
SDR

BodeMuseum



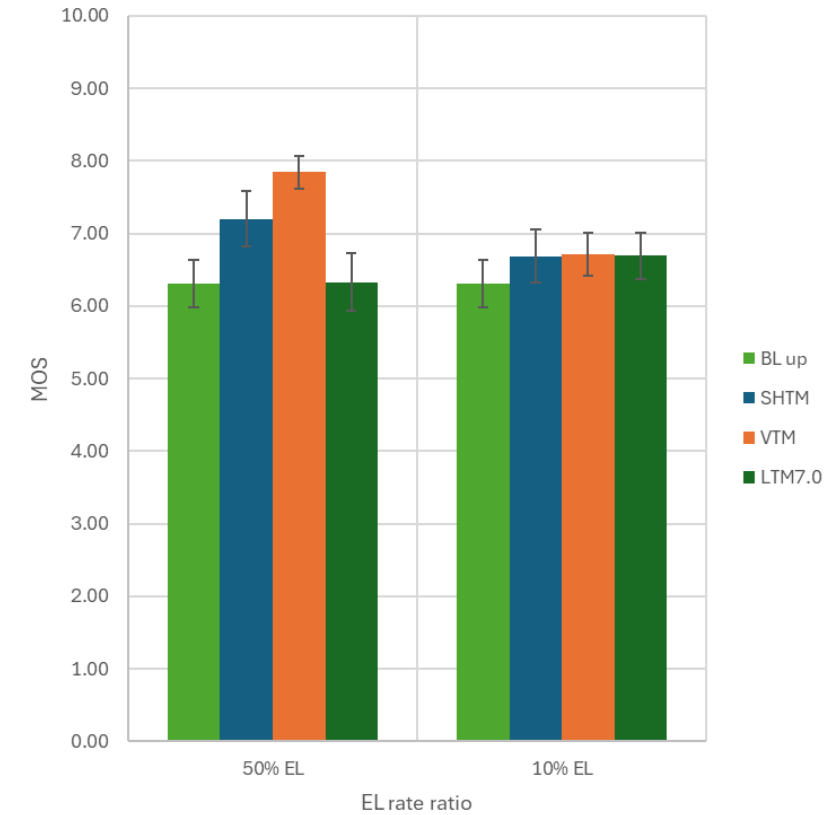
HDR-HLG

AMS02



HDR-PQ

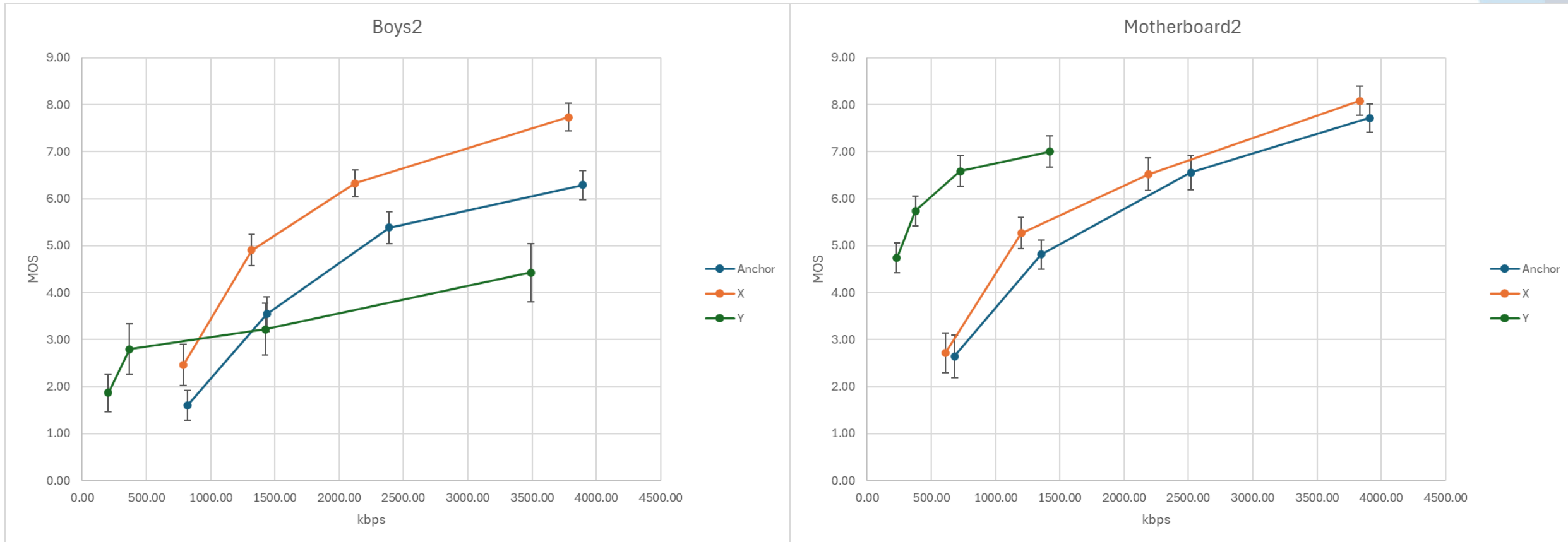
RiverPlate1



CfP for Lenslet Video Coding

- Bitstreams submitted by proponents
- Video sequences rendered to 1080p30 YUV files by proponents
- Crosscheck as part of AHG activity
- Subjective tests performed at RWTH Aachen University and VABtech
 - DCR/DSIS protocol
 - Data of both labs merged for final results
 - 48 test participants in total
 - Data processing by z-score+PLCC and according to BT.500, respectively
- Output document AG5N171

CfP LVC example results



JVET CfE on video compression with capability beyond VVC

- **Compression efficiency test case (CP)**
 - **ECM + 4 submissions** + anchor
 - All but one submissions in all test categories
- **Runtime test case (RT)**
 - **ECM_2x + 15 submission variants** + anchor
 - All submissions responded to all test categories
 - Evaluated on subset of test sequences
- **Functionality test (FC)** (error concealment)
 - One submission with subset of test sequences

Ongoing and upcoming VQA activities

- **CVQM database**
 - CVQM-UHD
 - Metric evaluation
- **CfE → CfP: video compression with capability beyond VVC**
 - CfE report
 - Test sequence + rate point refinement
- **Verification testing for multilayer VVC**
 - Quality ladder for edge storage reduction
 - Evaluation of dryrun test results
- **Preparations for verification testing of V-DMC**
 - Dynamic Mesh Coding

Ad-Hoc Groups

- **Compressed video for study of quality metrics (CVQM)**
 - CVQM-UHD
 - Considerations towards CVQM-HDR
 - Study of metrics
- **Guidelines for subjective visual quality evaluation**
 - Verification tests
 - Expert viewing
 - Raw file naming conventions