**VQEG meeting minutes**

**Boulder, January 21-24, 2014**

Including Minutes from each day’s sessions.

Note: the ITU Intersecotor Rapporteur Group on Audiovisual Quality Assessment (IRG-AVQA) meeting is held coincident with VQEG. A special session is devoted to ITU matters on Thursday morning.

# VQEG notes 21/01/2014 Tuesday

**Thanks to Glenn Van Wallendael (Ghent University) for taking notes**

## Group Updates

• Independent Lab Group (ILG)(Pinson/Corriveau)
- Mainly Hybrid test: discussion needed about new bug fixes
- First analysis of subj results available

• AVHD (Huynh-Thu/Schmidmer/Pinson)
- Finalizing test plan
- Add adaptive streaming to the project
- Proposal for new method for AV subj tests: will be presented later this week

• Hybrid – Perceptual/Bitstream (Borer/Lee)
- A lot of progress has been made
- Weekly audio calls were held
- Plan is to finish essential parts at this meeting

• Tools and Subjective Labs Setup Group (Staelens/Van Wallendael)
- Tools for use in different projects can be found on: <http://vqegstl.ugent.be/>

• Project for Collaborative Development (JEG) (Bourett/Le Callet/Brunnström)
- Low activity

• 3DTV (Huynh-Thu, Barkowsky, Le Callet)
- 3 topics:
1: subj assessment methodologies
2:viewing conditions for subj 3D experiments
3:Development of objective metrics

• QART (Leszczuk, Dumke)
- Chairs not yet present.

• JEG-Hybrid (Staelens, Barkowsky, Janowski)
- Large dataset with encoded sequences (H.264/AVC and HEVC)
- New obj metrics are added to the project
- Bi-weekly conf calls are made

• Rice (Hands, Brunnström, Engelke)
- About interactive communication, like video conferencing
- Not a lot of activity

• MOAVI (Wyckens, Borer, Leszcuk)
- Not so much activity
- Mikolaj will report further on during the week

• HDR (Le Callet, Corriveau)
- No activity since last meeting

• UHDTV (Baroncini, Ramzan)
- No activity since last meeting
- Marcus announced that source content should become available
- UHD sequences used within MPEG could be asked to the owners of these sequences
- Florence offers help in possible shooting of 4K sequences

• General (Webster)
- It might help to split projects in active/less active in order to know where to focus on
- Qi: Would a network oriented project be useful to consider?
- Kjel: it could be useful to start a collaborative effort with QUALINET

AVHD has streaming and Over-the-Top (OTT) in their mandate.

## Liaison Reports

• MPEG (Baroncini / Van Wallendael)
- Verfication tests for AVC 3D against MVC: successful. There is an agreement with QUALINET that results will be made available. Main outcome, 2/4 significant difference using professional display compared to commercial display. A report to VQEG will be written.
- Evaluation of results of call for proposals for patent free video coding will be done. The result was dramatically unstable, because of the use of a limited number of non-experts. With a new test using 12 experts, there was a stable result.
- Evaluation of contributions to call for proposals on screen content coding. Side by side evaluation will be done with -4 🡪4 quality scale. Slides with more details can be made available.

• ITU-R WP6C (Lee, Baroncini)
- Work in progress for 3D safety guideline development
- Related topics for UHDTV including subjective evaluation methods for UHDTV
- Extensive discussion and interests on IRG-AVQA

• ITU-T SG12 (Berger, Schmidmer)
- P.NATS organized by ITU-T Q17/12
- P.NATS is an extension of the bitstream models as in P.NBAMS towards adaptive streaming
- A call for participation is getting released in these days. Final confirmation of participation is expected by end of February.
- P.NATS is targeting longer sequences, to better incorporate quality changes and longer stalling / re-buffering events

• DVB (Agboma)
- TM 3D TV group: compare different spatial multiplexes: side-by-side, top-bottom
- a new multiplex is called tile format and the company (Sisvel) claims better subj quality
- See slides
- A request is sent about good parameters for the explained subjective test.
- Also, the question is asked whether VQEG or individual labs are willing to perform the subjective test.

• ITU-T SG9 (Huynh-Thu, Pinson, Lee, Webster)
- a series of recommendations for 3D testing are consented and will be looked at Thursday morning
- statistics show that most downloaded recommendation is quality evaluation related

• COST Action IC1003 Qualinet (Brunnström)
- A joint e-mail reflector has been set up
- a gaming task force and 2D/3D video streaming task force ask if there is interest for closer collaboration
- the liaison mentions all task forces within qualinet, so a look can be taken in this document for interested people

• QoMex 2014 (Singapore)
- The next QoMex will be in Singapore in summer hosted by Stephan Winkler

• ITU Intersector Rapporteur Group (Pinson, Berger, Lee)
- Will be discussed Thursday morning

• ICDM Project (Brunnström)
- Not much to inform about

## Hybrid

### Issues regarding PVSs

See hybrid project work document VQEG\_HYBRID\_2014\_018\_Co-Chairs\_hybrid\_boulder\_2014\_session2.docx

### Review of the subjective results

See hybrid project work document VQEG\_HYBRID\_2014\_018\_Co-Chairs\_hybrid\_boulder\_2014\_session2.docx

## RICE

### Brief intro to CSIRO and Myself (Ulrich Engelke)

See slides VQEG\_RICE\_2014\_013\_CISRO\_1400121\_vqeg\_engelke.pptx

Directions within RICE (Kjell Brunnström):
1) replicate and test whether test environment is still valid
2) new directions like what Ulrich is proposing
3) 3D video conferencing
4) obj metrics

## eLetter

A preliminary version of the first edition of the eLetter is handed to all the meeting participants for review. This is a preliminary version, so not yet an approved version for public release.

## AVHD

### Results from immersive subjective test method: proof of concept (Margaret Pinson)

See slides VQEG\_AVHD\_2014\_026\_NTIA\_immersive\_subjective\_testing\_method.pptx

Comments:
- How many test samples were there? Only 4 HRCs, so a small test
- This method tries to measure the entire system instead of only the audio or video quality. A vendor would be mainly interested in the performance of the entire system.
- It was remarked that more analysis is needed to explain the higher subjective score of the immersive method.
- Could it be that because of the amount of information that subjects need to take into account, the score would be influenced.
- The test was less exhausting than regular tests showing much PVSs of the same source, which is a big advantage of this method.
- Wouldn’t you need a large pool of sources? 20 SRC and 4HRC were used. So yes you need a lot more sources, but this is more a strength, because a broader range is used. Finding a sufficient amount of sources can be difficult.
- You probably need more subjects than with a regular subj test.
- The environment should be more close to the end environment of the product, so not so controlled as with regular tests. Also, more people doing the test at the same time can be interesting if for example the goal is to rate video quality of football games.
- A similar approach has been taken to playability of games. During the game, the focus of the gamer changes which also changes the requirement of the quality. Friday will this research be presented.
- A concern was raised about this method being too relaxed, making the people less focused on the task. Certainly the distraction questions raise the concern. More research is needed to find out if this is indeed the case.
- The technique seems appropriate for crowdsourcing. Also because of the distraction questions. No resources are available to try that approach.

### Enabler for next generation mobile video applications (Qi Wang)

See slides VQEG\_AVHD\_2014\_015\_UWS\_Qi\_Wang\_Enabler for Next-Generation Mobile Video Applications.pdf Comments:
- Why UDP based instead of TCP? Because of real-time requirement. Even when using TCP with a real time constraint, there will be packet loss.
- Which kind of impairment was observed? For encoder comparison, the artefacts are subtle; here it was easier because of the packet loss. PSNR is measured with decoded sequence, not on original in order to exclude compression impact.
- The main focus of the test bed is mobile video delivery.
- How do you implement adaptivity over RTP although RTP does not give feedback? This work is not based on DASH. The bandwidth is adaptively limited in the core routers by dropping layers. Information for adaptation comes from monitoring equipment in the network. It is network based, not client initiated.
- Experiments are prepared off line and stored. Every viewer gets to see the same distortions.

**VQEG Minutes from Wednesday, January 22, 2014**

Thanks to Chulhee Lee (Yonsei Univ.) for taking AM notes

HDR

* Presentation by Patrick (remote)
	+ Database generation status
	+ Evaluation of potential objective metrics for HDR
	+ HDR QoE progress report
	+ HDR compression: JPEG XT
	+ HDR issues in privacy & security (QART)

JEG-Hybrid

* Input documents
	+ Simulation of Robust H.264/AVC Decoding in presence of Data Loss by Enrico Masala, Politecnico di Torino: VQEG\_JEG-Hybrid\_2014\_005\_Politecnico\_di\_Torino\_contribution\_Simulation\_of\_Robust\_H.264\_AVC\_Decoding.pdf
	+ Python Scripts for H.264 Bitstream Extraction from pcap Files, Intel Corporation: VQEG\_JEG-Hybrid\_2014\_004\_Intel\_Python\_Scripts\_for\_H.264\_Bitstream\_Extraction\_from\_pcap\_Files.pdf
* Introduction by Marcus
	+ Two publications on JEG Hybrid
	+ Databases available to interested organizations (over 10,000 sequences)
	+ Python implementation of P.1201.2

VQEG\_JEG-Hybrid\_2014\_022\_Freely Available Large-scale Video Quality Assessment Database in Full-HD Resolution with H.264 Coding.pdf

* Presentation by Enrico Masala: Simulation of robust of H.264/AVC decoding in presence of data loss
	+ Robust decoding for JM
	+ Future works: HEVC HM
* Presentation by Barry O’Mahony: Python Scripts for H.264 Bitstream Extraction from pcap Files
	+ Source programs are offered for analysis and further studies
* Presentation by Savvas: ITU-T Rec. P.1201: VQEG\_JEG-Hybrid\_2014\_016\_TLabs\_2014\_VQEG-JEG\_P12012-PD\_v05\_share.pdf

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| **VQEG 2014-01-22 (Wednesday, PM)****Thanks to Mikolaj (AGH) for taking notes** |

# Hybrid

# Objective results:

Do proponents agree to put their names and model type on the model performance analysis?

Do proponents agree to exchange the objective data among the other proponents?

**Decision: All proponents agreed.**

# Issues with PVSs:

## VGA3

Tandem coding: Encode at bitrate b\_1, the re-encode at bitrate b\_2, with b\_2 > b\_1

v03\_src12\_hrc15\_h264.pcap (2.36MB/885kB = 2.73)

Content-Base: rtsp://192.168.169.77/Tandem\_coding2\_512kbits\_1380kbits/HybridVGA3\_src12\_512\_1380kbit\_gop50\_baseline\_tandem.264/

**Open**: v03\_src12\_hrc15.

**Decision: Agreed to remove v03\_src12\_hrc15.**

##  WVGA2:

Down-up-sampling PVSs: MOS has to be equal or larger to the MOS of the samples transmitted without resizing.

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| --- | --- | --- | --- |
| Down-Up-sampling | HRC11 | HRC04 | Same resolution |
| HybridWGA2\_src01\_hrc11\_WVGA\_25fps.avi | 1.52 | 2.96 | HybridWGA2\_src01\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src02\_hrc11\_WVGA\_25fps.avi | 1.57 | 1.30 | HybridWGA2\_src02\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src03\_hrc11\_WVGA\_25fps.avi | 1.39 | 1.57 | HybridWGA2\_src03\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src04\_hrc11\_WVGA\_25fps.avi | 1.61 | 1.04 | HybridWGA2\_src04\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src05\_hrc11\_WVGA\_25fps.avi | 1.57 | 1.48 | HybridWGA2\_src05\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src06\_hrc11\_WVGA\_25fps.avi | 1.39 | 1.91 | HybridWGA2\_src06\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src07\_hrc11\_WVGA\_25fps.avi | 1.35 | 1.09 | HybridWGA2\_src07\_hrc04\_WVGA\_25fps.avi |
| HybridWGA2\_src08\_hrc11\_WVGA\_25fps.avi | 1.57 | 2.09 | HybridWGA2\_src08\_hrc04\_WVGA\_25fps.avi |
| Average | 1.49 | 1.68 |  |
|  |  |  |  |
| HybridVGA3\_csrc02\_hrc11\_WVGA\_25fps\_dec.avi | 2.35 |  |  |
| HybridVGA3\_csrc04\_hrc11\_WVGA\_25fps\_dec.avi | 2.52 |  |  |
|  |  |  |  |
|  | HRC09 | HRC03 |  |
| HybridWVGA1\_csrc01\_hrc09\_WVGA\_25fps\_dec.avi | 1.22 |  |  |
| HybridVGA2\_csrc03\_hrc09\_WVGA\_25fps\_dec.avi | 1.09 | 1.65 | HybridWVGA2\_csrc03\_hrc03\_WVGA\_25fps\_dec.avi |
| HybridWGA2\_src01\_hrc09\_WVGA\_25fps.avi | 3.87 | 3.09 | HybridWGA2\_src01\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src02\_hrc09\_WVGA\_25fps.avi | 3.43 | 2.48 | HybridWGA2\_src02\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src03\_hrc09\_WVGA\_25fps.avi | 3.00 | 2.52 | HybridWGA2\_src03\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src04\_hrc09\_WVGA\_25fps.avi | 3.52 | 1.78 | HybridWGA2\_src04\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src05\_hrc09\_WVGA\_25fps.avi | 2.74 | 2.00 | HybridWGA2\_src05\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src06\_hrc09\_WVGA\_25fps.avi | 3.43 | 2.35 | HybridWGA2\_src06\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src07\_hrc09\_WVGA\_25fps.avi | 3.22 | 2.00 | HybridWGA2\_src07\_hrc03\_WVGA\_25fps.avi |
| HybridWGA2\_src08\_hrc09\_WVGA\_25fps.avi | 3.78 | 3.17 | HybridWGA2\_src08\_hrc03\_WVGA\_25fps.avi |

**Decision: Agreed to keep HRC11.**

# Common Set Mapping

**Decision: Accepted: Move superset analysis to secondary analysis.**

1. Hybrid (captured partially):
	1. Discussion to have or not a linear fit. based on data analysis, Lucjan argued that there were some significantly worse/better sets.
	2. Correlations. Lucjan compared correlations of Hybrid and HDTV. HDTV was much better. Some of inter-set correlations are not passing HDTV thresholds; however, we haven't set such constraints in Hybrid Test Plan. Discussion between Jens and Lucjan on the reason for correlation. Lesson learnt show that strange PVS processing methodologies (like: handling interlace) can cause problems with correlations.
	3. Vittorio, Lucjan and Silvio. Discussion on processing of sequences, possible cropping or scaling of (W)VGA. Probably no problems, just a confusion of filenames.
	4. Margaret asking if proponents can replace missing data-points. No objections.
	5. Margaret announcing Yonsei proposed model fix. Case closed.
	6. Lucjan announcing he discovered subjects missing to score. 8 errors spotted but corrected. No remarks.
	7. Discussion between Margaret and Chulhee on procedure for model fixing session.
	8. Discussion between Marcus, Savvas and Margaret on descriptions on bug fixing. Call for sending it to Margaret. Two sentences describing each bug would be enough.

Decision :proponents can replace missing data-points.

# AVHD:

* 1. Chris has prepared a document that captured most of the minutes details. The rest is provided below.
	2. Chris: how to differentiate AVHD from Q14/12? Savvas: explained details of P.NATS, details in supplementary notes of Chris. Arthur explained independence of VQEG. Phil presented the Intel point of view (influence of Internet of Things, etc. captured by Chris in supplementary notes). Jens mentioned an issue of excessive subjective testing (emulating different contexts, details in Chris' notes). Lucjan highlighting more problems (if user really needs something, s/he will accept low quality). Silvio realized VQEG has been so far really conservative in mixing contexts. Kjell mentioned different codecs. Jens mentioned the need for inter-resolution tests. Savvas asked if the model is about to capture application-specific parameters or perceptual effects. Jens asking if this is Hybrid approach. Chris: not defined yet. Arthur reminding the root of AVHD.
	3. Vittorio asked about official recognition of VQEG by ITU-R. Now ITU-R somehow recognizes VQEG.
	4. Chris proposing:
		1. AVHD to be a big project, maybe combining approaches (collaborative)
		2. Maybe formulating two subgroups:
			1. Audio-video
			2. Adaptive streaming
	5. Andrew anticipating his presentation that is going to be shown later on
	6. Lucjan referred to the experiment made by Nicolas on long sequences. Chris explained they already work on combining short- and long-term MOS
	7. Savvas referred too MPEG-DASH (details captures by Chris).
	8. Vittorio mentioning other use just PSNR for quality evaluation.
	9. Qi stated we need subective methods to assess adaptive streaming.
	10. Vittorio proposed EU Horizon 2020 project on AVHD. Mikołaj proposed to specify calls. Chris mentioned we are not all Europeans. Vittorio mentioned AVHD H2020 can also host non-EU.
	11. Kjell proposed crowd-sourcing (details captured by Chris).
	12. Florence asked about how fluctuation affects QoE. Lucjan shared his research on monitoring users 24/7.
	13. Vittorio explained his research in which operator was calling customers after they suffered artifacts, but many customers didn't notice anything.
	14. Savvas proposed willingness to pay as alternative for MOS
	15. Arthur and Chris discussed schedules, mentioning Q14 is about to finalize by end of 2014, AVHD has no chances, but AVHD will be more detailed, as Q14 to much pragmatic. Also discussing how many people interested in AVHD (submitting models, working as ILG).
	16. Lucjan talking about pull instead of push methods for subjective experiments.
	17. Savvas highlighting again that e should go beyond MOS.
	18. Chris called for round-the-table declarations of VQEG stakeholders, results captures in supplementary noted by Chris.

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| How can we differentiate our work from the work performed by Q14/12?Notes for these sessions on Wed PM taken by Christian Schmidmer (Opticom)Minimal summary of the scope of P.NATSAudiovisual* H.264, H.265(?) + some audio codecs. This is not yet well defined.
* 1..3min
* Parametric + FR
* Input is meta data + pcap files (+SRC + PVS for FR models)
* Schedule: End of 2014!

Differentiators between potential VQEG work and P.NATSThe following companies expressed their general interest in performing work on this topic within VQEG:Intel, AGH, UGhent, FUB, Sky, DT, UWS, Swissqual, IRCCyN, Yonsei, NTIA, Acreo, OPTICOMApplication, ScopeCollection of ideas which scope a VQEG model for adaptive streaming systems could cover. The list is already provisionally sorted according to priorities. The companies listed are those which indicated a topic as especially interesting for them.* Longer sequences, e.g. entire movies (AGH, UWS, Swissqual, IRCCyN, NTIA, Acreo, OPTICOM)). Remark: In the later discussion it was made clear, that initially it will be more realistic to look at sequences which are of a duration in the range of few minutes. The main interest was on the subjective side and so much on the objective modelling.
* Video consumption location/device, multi-screen (DT, Swissqual, Yonsei, NTIA, OPTICOM)
* Shall be capable of handling resolution changes (Swissqual, Yonsei, NTIA, OPTICOM)
* Shall it be live video (ACREO) or on demand video?

Perhaps a bit too far away at the moment: * Can we go beyond MOS (user engagement, total video consumption, willingness to pay, acceptability)? (highly important for INTEL, Sky, DT, Swissqual, IRCCyN, Arthur, NTIA, Acreo)
* Adaptive streaming for public safety systems (-> more related to QUART project, not further pursued by AVHD group)

Other IdeasHere we list other ideas that popped up, but which are not related to the scope of a potential model for the assessment of adaptive streaming systems.Implementation- Well specified, without meta information that is suddenly “just there”- How shall we handle the parameter extraction from the streaming protocol? This could become very tricky and too specific.- We could consider Hybrid models- Modular approach with the possibility to exchange individual blocks?Subjective Methods- Long sequences- Setting the context of the subjects - Multi-screen- Content dependencyDASH- Evaluation of MPEG Core experiments could be supported by VQEG (on the subjective side)Crowd sourcing methodJEG development approach |

## Bug fixing session (Late Wed PM)

* Model bugfixing were successfully performed by the proponents under the supervision of the ILG.
* Decision: Yonsei FR-model missing values for rebuffering PVSs will be replaced with scores from the Yonsei RR128K model.

# Minutes Thursday morning Jan 23, 2014.

Thanks to Kjell Brunnström of Acreo for taking notes.

## IRG-AVQA

### P.NATS

* Jens Berger presented the CFP for P.NATS. Showing the building blocks of P.NATS model.
* Margaret ask if the models are also about what artifacts that the models will be expected and they will deal with coding impairments.
* Christian points out that when e.g. image is gone there are no models dealing with.
* Lucjan ask if lip sync is considered. It is not included, but assumes that it does not happen. Christian points out that with the current model this would be hard to detect. Lucjan points out that he can see example of this and should be considered. Jens points out that this usually takes place in the player and this is not considered here. Christian points out that typically if it happens it will be in the order of 0.5 sec.
* Announcing of interest should be done before Feb 7, 2014. Confirmation should be done later (Feb 28), but the informal announcement must be done now. If this is done it is possible to withdraw later. It expected to contribute to the work e.g. produce databases. If someone wants to put in databases or other type of data without being a proponent that can be discussed. The participants needs to be a member of ITU. The new rec should be finished by Nov 2014.
* Alexander Raake participates on the phone. He lists the current proponents, which is now about 8 or 9. Main track is track 1, but track 2 may be dropped if there low interest or other problems to synchronize them.

No decision taken

### 3D display requirements draft new rec about display requirements

* Chulhee Lee summarizes this rec.
* The conclusion is that any reasonable display is could enough
* The rec was amended with limitations. The following sentence was added to the draft recommendation:

“This Recommendation only applies to video quality assessment of coding and transmission error scenarios where the 3D video sequences are moderately to strongly degraded. More stringent display requirements may be needed to accurately assess quality in the presence of nearly lossless quality impairments (e.g., where the quality is nearly the same as the original 3D video). “

### 3D display requirements draft new rec 3D fatigue

* Chulhee presented the documents
* Marcus Barkowsky wanted to go through the document and discuss it during the 3D session.
* The rec should be finalized in September and the will be time to discuss at the next VQEG meeting or the next IRG AVQA meeting

### 3D display requirements draft new rec on how to perform a subjective experiments.

* Margaret is presenting the document briefly, but will make available for later discussion.

### ITU-R WP6C

* Chulhee is informing about ongoing activities with WP6C

### Next meeting

* Alexander Raake suggest that it will coincide with Q14/12-meeting (Feb 2014)
* WP6C would also like to have the meeting coincide with their meetings (Mar 2014)
* Most likely end of February and maybe at the WP6C
* Next VQEG meeting (June or July)

## JEG Hybrid

* Presentation by Mikołaj Leszczuk the 10000 PVS generated
* Marcus is commenting about FR results and how they agree or not with each other.
* Discussion what this could be used for and how it may be possible to get subjective data for this data set or a least partly.
* Vittorio is willing to do some analysis of the data.
* Savvas asks if there are any xmix-files available for the P.NAMS algorithms.
* Kjell informed about the crowd-sourcing experiment that they are currently develop and maybe they can share the web-interface later.
* Kongfeng Zhu el al work is presented by Marcus. It is a NR model, using a Laplacian pyramid and a neural network.

Thurs PM

VQEG notes 23/01/2014

Thanks to Florence (SKY) for taking notes

Florence revisited the DVB TM 3DTV discussion to seek VQEG expertise for evaluating the spatial multiplex options: side by side, top and bottom, and tile formats.

The following were agreed:

* VQEG writing a first draft of a testplan until end of February

(tentative Acreo, IRCCyN, FuB, NTIA, Intel, AGH)

* DVB providing the Processed Video Sequences (DVB) in Two View Full-HD format from SRC that can be used license-free by VQEG participants (at least within this project) or that is provided by VQEG
* VQEG participants are running the subjective experiment (tentative

Acreo, IRCCyN, FuB, AGH)

* The data analysis is performed by VQEG as specified in the testplan

(as written before the execution of the subjective assessment)

(tentative Acreo, IRCCyN, FuB, NTIA, Intel, AGH)

* The decision on the superiority of the different formats is left to DVB
* This project is under the umbrella of the 3DTV group

In favor:

* Acreo, Intel, AGH, NTIA, FuB, Sky, UWS, Yonsei

No opinion:

* UGhent, T-Labs, Swissqual, Opticom

Against:

* none
* We agreed to organize a conference call next week in order to discuss the details.
* A doodle poll was created for a VQEG/DVB TM 3DTV Group telco
* Margaret drafted a list of questions for Florence to put forward to the DVB TM 3DTV Group prior to the VQEG/DVB TM 3DTV Group telco regarding the DVB proposed study of spatial multiplexes. See: VQEG\_3DTV\_2014\_027\_Pinson\_vqeg\_dvb\_collaboration\_conditions\_proposal\_v1.docx

Hybrid

The following were reviewed the following the hybrid session

* MOS of the source sequences – still under review
* MOS Model performance for the hybrid – still under review
* Common set and super set mapping
	+ Decision: Should src3(snowfall) sequence be removed from the common set of hd? Yes, remove from the common set.
	+ Decision: Keep the super set for secondary analysis
	+ Should MOS or DMOS be used for the reduced reference and full reference metric models? Currently MOS is being use – still under review
	+ Need to have a virtual meeting to completely finish (1 to 2 months from now)
	+ Assign tasks to people in terms of writing and running data analysis
	+ Review the hybrid first draft document
	+ Need to discuss how VQEG will recommend this model as a standardized model?
	+ How to phrase the executive summary was discussed Start by using the same way we’ve done in the past to the ITU.
* With the super sets, we should divide into sub categories as appropriate and do the analysis

AVHD

* Kjell suggested that the adaptive streaming project should be its own project and not part of AVHD – still open

Andrew Catellier (NTIA/ITS) presented a paper on Impact of Mobile Devices and Usage Location on Perceived Multimedia Quality: VQEG\_AVHD\_2014\_006\_NTIA\_WESTcontrib.doc

* Demoed a software that can be used to rate video quality on multiple portable devices. Andrew shared the following the links to the software

Download the software

<http://go.usa.gov/ZSkk>

Manual

<http://go.usa.gov/ZSaz>

2012 QoMEX paper

<http://go.usa.gov/Zha5>

* Andrew plans to put the software on GitHub for easy collaboration but there are still pending issues in terms of getting the GitHub approved.
* The software supports different kind of tests such as forced choice tests, pre-response tests etc
* Kjell presented the interface of their crowdsourcing software - work in progress.
* Vittorio talked about an invitation from MPEG concerning a call for proposal for the encoding of screen content using HEVC and the setup of how the subjective tests will be carried out.
* The purpose was to offer the possibility of being paid to run some subjective assessment.
* Vittorio to send an email using the general VQEG reflector to collate people who are interested in running the subjective tests.

Margaret: Are there any objections to publishing the first VQEG e-letter after all necessary edits have been done? None

Arthur: There’s a document on the VQEG ftp site that has the statistics for the ITU-T study group (document 17) over the last four or five years. The recommendations that were the among the most popular were the video quality ones. Liaisons from Study Group 9 with the 3D draft recommendations are on the VQEG’s ftp site for this meeting.

VQEG Board meeting

Arthur introduced the adaptive streaming and the work in Study Group 12 Q 14, which is well laid out in terms of deadlines etc.

What should VQEG do in this area and should adaptive streaming go under the AVHD project or create another group to look into adaptive streaming.

Suggestions

1. Segregation of less active groups into a different group, especially on the website.
2. Clearly identify projects that are joint efforts and competitive efforts
3. A defined deadline approach
4. An hierarchy approach
5. Distinguish between groups and projects
6. Use the Qualinet approach where a project is finished.

Discussion ensued – still under review

# Minutes Friday morning Jan 24, 2014

Notes taken by Lucjan Janowski and Mikołaj Leszczuk (AGH).

## Ultra HD

Work plan for Ultra HD was presented by Arthur Webster based on the document provided by Naeem Ramzan. (VQEG\_UltraHD\_2014\_023\_Co-Chairs\_Work plan for UltraHDR1.docx) There are defined three objectives:

1. Creating of Ultra HD database (current focus)
2. Defining subjective quality testing methodology.
3. Objective quality metrics.

Kjell Brunnström: Is CDVL able to host such files?

Margaret H. Pinson: It is possible, some sequences are prepared to be shared. Some problems with the currently available content were described.

Florence Agboma: Skype is able to provide some content. The content should be looked at to see if the type of content (anything, even removed in post processing), the length (anything starting from 15 seconds is very useful), legal limitations (many different options are possible) are suitable for use by VQEG and are available for such use.

Marcus Barkowsky: other available 4K content:

**Tears of steel**

Homepage: http://tearsofsteel.org

Uncompressed download (610GB): http://media.xiph.org/mango/tearsofsteel-4k-tiff/

**SJTU Dataset**

Paper: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6603201&queryText%3Dsjtu+4K

Download link (92GB): http://medialab.sjtu.edu.cn/web4k/index.html

**EBU Sequences**

Homepage: https://tech.ebu.ch/testsequences/uhd-1

Only a few sequences are available without paying a fee and it is not clear whether encoding is allowed (the license states: Creative Commons Licence (Attribution- Non-Commercial - No Derivatives).

Also the SVT (The Swedish public service broadcaster) 4K content on VQEG fileserver and CDVL are available. (ftp://vqeg.its.bldrdoc.gov/HDTV/SVT\_MultiFormat/)

## Qart

Decision: Upcoming plan is focused on extending P.912 recommendation.

Presentation given by Joel Dumke explains: what is Generalized Use Classes (GUC’s), different dimensions of surveillance video system, the idea of Visual Acuity metric. VQEG\_QART\_2014\_028\_NTIA\_PublicSafetyVideoQualityWork.ppt

An object recognition experiment results were presented. The results are not very strong but the detail analysis shows that the target size is the key parameter.

An interesting questions is: How to manage the network capacity for specific event (which should be supported with extra surveillance cameras). Problem of network optimization for many video streams.

Bert Vankeirsbilck gives a presentation (VQEG\_QART\_2014\_024\_iMinds\_Boulder-gamingTrack-ibcn-ugent.ppt )about a platform for the real-time subjective assessment of interactive multimedia (a video game in this case). The proposed platform can change many different options like, differently encoded different part of the screen, codec restart on the fly. More details can be found in the paper “Platform for real-time subjective assessment of interactive multimedia.” An experiment run on this platform involved video car race game was described. More details can be found in “Quality of experience driven control of interactive media stream parameters.”

Marcus Barkowsky: Would it be possible to get votes without stopping the game?

Bert Vankeirsbilck: It would be difficult to say when the game can be distorted by voting.

Rahul Gaurav: Were they experts in the field of Gaming research or normal gamers?

Bert Vankeirsbilck: Most just occasionally played a race game.

Kjell Brunnström: Have you done any test close to video conference?

Bert Vankeirsbilck: Not, the platform was used only for the one experiment until now. Right now the audio is not supported so it is impossible.

Christian Schmidmer: Would it be possible to record their voices and make such estimation of the quality.

Bert Vankeirsbilck: Some research was done with it. It is interesting idea.

Related to Bert’s presentation and discussion are 3 video files (mp4) on this meeting’s directory:

VQEG\_QART\_2014\_024a\_iMinds\_Boulder-gamingTrack-ibcn-ugent\_1-gamecombat2\_30fps\_1600x1200\_15gop\_2qp.mp4

VQEG\_QART\_2014\_024b\_iMinds\_Boulder-gamingTrack-ibcn-ugent\_2-gamecombat2\_10fps\_1600x1200\_15gop\_2qp.mp4

VQEG\_QART\_2014\_024c\_iMinds\_Boulder-gamingTrack-ibcn-ugent\_3-gamecombat2\_30fps\_1600x1200\_15gop\_47qp.mp4

## MOAVI

Presentation given by Mikołaj Leszczuk. Mapping KPI (Key Parameter Indicator) for different analyzed experiment was shown. The obtained results for some KPI were obtained: Blur, Exposure Time Distortions, Noise, Block loss, Blockiness, Freezing, Slicing. For the future AGH will work on the indicators which can be computed assuming that only HDMI signal is available.

Silvio Borer: Why does not KPI freezing work perfectly?

Mikołaj Leszczuk: it is difficult to say if a frame freezes or a still image is shown on the screen. Kjell Brunnström added that information about still image can be enough.

## AVHD

Silvio Borer proposed to add to the scope of the project description making it clearer what is the scope of the project.

Christian Schmidmer it will be corrected off line.

Christian Schmidmer led the test plan discussion.

1. Decision:
	1. AVHD is a group not project
	2. Within the group different projects are added: adaptive streaming, AV connection, HDTV II, Improved methods for AV testing.
	3. Group leader will have co-chairs and projects will have project manager. Each project has a project manager and one of the co-chair as leaders.
2. Decision: remove re-buffering and focus on the combining of audio and video quality for short sequences in the case of AV project (old AVHD).

## HYBRID

Decision about details of the final report, subscribing particular persons to the missing parts was done:

1. All proponents and ILG organizations should send “Organization” and “webpage”
2. Subjective test summary. Chulhee Lee agree to do it.
3. Executive Summary. Filling the missing part. Christian Schmidmer agree to do it.

New data were shown by Margaret H. Pinson.

All labs should make the decision about publishing the data. Probably some delay should be added. Silvio Borer will send an e-mail to the reflector asking all laboratories about making the data available.

Long discussion about current executive summary took place. The conclusion was made to publish in the meeting files of this meeting a draft version of the final report, including the draft executive summary. This file is ftp://vqeg.its.bldrdoc.gov/Documents/VQEG\_Boulder\_Jan14/MeetingFiles/VQEG\_HYBRID\_2014\_026\_VQEG\_Hybrid\_Final\_Report\_version0.2.doc

The VQEG meeting was closed around 5:30PM Friday, Jan 24, 2014. An optional work session was held on the following day (Saturday, Jan 25). Six people attended the optional work day.