 VQEG Meeting Minutes - Stockholm July 2014

# Monday AM, July 7

## Group Updates

### more

• ILG has been supporting the Hybrid effort.

• AVHD has several presentations on adaptive streaming. AVHD will split time between adaptive streaming discussions and audiovisual validation testing.

• Hybrid weekly audio calls resulted in a draft final report, which is expected to be approved this meeting.

• Tools & Subjective Labs Setup Group has nothing new to report.

• JEG has been supporting JEG-Hybrid, reported separately

• 3DTV has been discussing the DVB / VQEG collaboration on evaluation of different 3DTV formats. Ground truth subjective database work approaches stable version of test plan & sequences; the expectation is to run subjective tests before the next VQEG meeting.

• QART (quality testing for recognition tasks like recognition) work has resulted in proposed changes to ITU-T Rec. P.912, which has the related subjective methods. Interactive gaming subjective quality will also be addressed.

• JEG-Hybrid is working on database creation, aiming at a very large scale database intended to train objective metrics for video quality assessment; and also machine learning for hybrid video quality method development and/or training. Bi-weekly audio calls have progressed this work since last meeting.

• RICE focuses on improved subjective methods for video conferencing, particularly interactive methods, but there has not been much done yet.

• MOAVI is working on executables to calculate key indicator metrics, to be used by other efforts.

• HDR several presentations are expected. An open question is how to measure HDR subjective video quality.

• UHDTV has nothing new to report despite strong interest in the topic.

Liaison Reports

• MPEG HEVC / H.265 approved 2013, minor corrections, three extensions underway: (1) 4:2:2 and higher bit-depths (12 to 16 bits), (2) scalable compression and multi-view 3D, and (3) screen content compression (e.g., computer screen from word processor). Interlace support is minimal (treat as fields or progressive frames) and proposed expansions are contentious.

• ITU-R WP6C is expecting to examine Hybrid results at the next meeting. Last March, new interest was expressed in quality monitoring of multi-screen technologies & head mount displays (e.g. Google Glass). Questions were changed to include these new areas: Q45 & 102).

• ITU-T SG12 (attendees arriving later)

• ITU-T SG9 ITU-T Rec. P.913 approved recently. Friday’s Q2 & Q12 Rapporteur group meeting will examine three draft new Recommendations that address 3DTV subjective testing methods, which are expected to be consented as soon as September. New proposal will recommend changes to ITU-T Rec. P.912 based on QART work. SG9 has begun a trial effort to recognize participant activities by (for example) encouraging mention of related peer reviewed documents within the Recommendation (previously discouraged), and listing contributors of a Recommendation on the download webpage.

• COST Action are time limited (4 years) projects within the EU. Qualinet has one more meetings remaining, and is expected to apply for renewed funding with perhaps a shift in focus. Qualinet adaptive streaming (led by Marie-Neige) has been doing work on subjective testing methods, which may be shared by VQEG. Qualinet validation work (led by Marcus) overlaps with VQEG work, and Qualinet summer school (August) teaches related quality assessment techniques.

• QoMEX 2014 will be in Singapore. Paper acceptance letters have been sent out.

• ITU IRG-AVQA, approved last December, coordinates activities of ITU-T SG12, ITU-T SG9 and ITU-R SG6. Details forthcoming in the Friday session.

• ICDM Project liaison a couple years ago proposed collaboration on how to set up a TV / display in a controlled way. Goal was guidelines on how to set up TVs with complex options. Not much progress to date.

**Proposals for New Projects**

• Michele (Intel) proposes JEG project work targeting no reference video and image quality methods for source content (e.g., images captured directly from a camera). The intention is to target open source results and collaborative work, spanning tools, databases, subjective methods, etc. The target would be consumer oriented solutions, focused mostly on mobile applications (e.g., smartphones, tablets) with solutions that generalize to non-mobile applications. For example, to answer the question, “How do you help the consumer make a decision, presuming they know nothing about the technology?” A full presentation will occur later this week.

• James (Qualcomm) Display stream compression requires a visually lossless compression (e.g., 2 to 1 or 3 to 1, producing imperceptible impairments) to compress on a physical display link (e.g., to a mobile device screen). Last stage before display is visual lossless compression with a constant bit-rate. Partial image updates can occur and many formats must be supported and latency must be low. These compression schemes do not include any time dependencies (i.e., single frame compression only). The heart of the request is (1) to develop subjective measurement methods to measure / detect such just-perceptible quality impairments; and (2) objective measurement protocols, ideally NR. This compression scheme is expected to have high impact on HDMI and high resolution displays (e.g., 4K mobile devices). See http://www.vesa.org/wp-content/uploads/2014/04/VESA\_DSC-ETP200.pdf for more information. Qualcomm has a proposed subjective method and is interested in validating and/or improving this technique. Seven organizations expressed interest.

# Monday PM, July 7

## Rice

### topic 1

## Brian Sebastian Arndt made a presentation “Brain correlates in audiovisual QoE”, exploring non-intrusive methods for rating quality, specifically the use of an EEG to replace subjective ratings. They started by using simple stimuli (single syllables) to compare MOS rating and EEG with promising results (see the related paper in QoMEX 2012). Next analyzed long video segments (MOS & EEG) against various EEG bands. Found that low quality video was associated with increased alpha activity / fatigue, increased theta activity / drowsiness, and increased blink duration / fatigue (see related paper in the Workshop on Perceptual Quality Systems 2013, “Does low quality audiovisual content increase fatigue in viewers?”) These are proof-of-concept studies that focused on large quality disparities (e.g., high quality stimuli versus low quality stimuli). A drawback is that the equipment is fairly expensive. Slides a available on the VQEG website.Hybrid

## Hybrid

Analysis of pre- versus post- bug fix values discussed. Prior agreement is to calculate summary statistics.

Agreement was reached to omit this analysis.

Proponent comments on their mode (for Annex A) should be submitted to Margaret Pinson by Wednesday.

Agreement was reached to compare all models within spreadsheets only, with a comment in the final report that such a comparison is available within those files.

Agreement was reached that an interesting analysis would be the difference between Pearson correlation with & without the linear fit (for each dataset), as an ITU contribution. The purpose would be to show whether the non-linear fit had a major impact (i.e., thus questioning that particular fit). It agreed that it could be done if someone has the time.

Agreement was reached to keep the two new annexes (plots & secondary analysis) from version 1.15.

Text was proposed for appropriate/inappropriate uses of the data. Modified text is will be included in the next version of the final report. Agreements included spelling out SDO (standards developing organizations); asking for an informative email to the hybrid reflector if models are submitted an SDO except via a VQEG liaison; and other clarifications to the text proposed by Christian.

Agreement was reached to publish supplementary reports as needed after the Hybrid final report is finalized

# .Tuesday AM, July 8

## QART

## MOAVI

## AVHD

# Tuesday PM, July 8

## JEG

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# Wednesday AM, July 9

## 3DTV

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# Wednesday PM, July 9

## AVHD

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# Thursday AM, July 10

## 3DTV

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## Hybrid

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# Thursday PM, July 10

## HDR

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## MOAVI

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## UltraHD

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# Friday AM, July 11

## IRG-AVQA

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## ITU-T Q2/9, Q12/9 Rapp meeting

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# Friday PM, July 11

## MOAVI/UltraHD/RICE

Text…