AVHD Project Synopsis

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Editorial History

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| Version | Date | Nature of the modification |
| 1.0 | June 24, 2013 | Initial Draft, created by Lilli Segre |
| 2.0 | June 27, 2013 | Text copied from Multimedia 2 project synopsis, version 2.0  Modified to reflect creation of AVHD project |

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# . Introduction

This document contains an executive summary of the VQEG Audiovisual HD project (AVHD). All content is plain informational. A more detailed description of the individual aspects of the project is contained in separate documents. A description of these documents as well as their current versions is contained in this synopsis in section 2.13. In case of ambiguities those documents supersede the project synopsis presented in this document.

# . Project Synopsis

## Objectives and Application Areas

The objective of the AVHD project is to validate objective methods for the assessment of both the visual quality and the the combined audio-visual quality from an end users perspective. Targeted scenarios include, but are not limited to broadcast and streaming of audio-visual sequences over fixed and mobile networks, with a focus on consumer entertainment. The objective models are meant to be applied to short sequences (app. 10s).

## Model Types

Model types submitted for evaluation may comprise no-reference (NR), reduced reference (RR) as well as full reference (FR) methods.

## Source Signal Video Properties

Video resolutions under study will be up to 1080i/p, the minimum will be 720p. The video frame rate shall be between 24 and 60 fps. The color space used is YUV422 format.

## Source Signal Audio Properties

Audio signals considered will have a sample rate equal to 44.1 or 48 kHz at 16 bit resolution. The only tested format is linear PCM CM. Only dual mono and stereo signals will be considered.

## Target Distortions

The models shall be able of handling a wide range of distortions, from coding artifacts and AV synchronization problems to transmission errors such as packet loss. Coding schemes which are currently discussed for use in this study are MPEG2, H.264 and HEVC. Audio coding schemes include but are not limited to MP3, AAC, AMR, EVRC, Dolby.

Video bitrates used should result in a quality equivalent to H.264 at bitrates between 500 kbit/s and 20 Mbit/s

Audio compression will use resulting in a quality roughly equivalent to mp3 at bitrates between 8kBit/s and 256kBit/s. Audio and video compression should be typical to scenarios like IPTV, internet streaming services (e.g. You Tube) or mobile video applications.

## Model Input

Input to the models will be:

* The source audiovisual sequence (FR and RR models only)
* The decoded audiovisual sequence as it is seen and heard by the observer/listener in the subjective experiment (the PVS).

## Model Validation

The scores produced by the models will be compared to MOS scores achieved by subjective tests. These subjective tests will be secret and unknown to the model developers until all proposed models have been submitted.

## General Procedure

At this time it has not yet been decided whether the project will be conducted in a competitive or a collaborative way. This decision will be taken after the detailed model requirements have been defined.

## Model Disclosure

One clear objective of VQEG is that the benchmark shall lead to the standardization of one or more of the tested models by standardization organizations (e.g. ITU). This may involve the need for each proponent to fully disclose its model and to license its related IPR under FRAND (fair, reasonable and non-discriminatory) terms when it is accepted for standardization. If a model proponent is not willing to accept this, its model will be excluded from this test.

## Relation to other Standardization Activities

ITU-T SG 9/12, ITU-R WP6C

## Duties and Responsibilities

It is desired that model development and model validation will be handled by independent organizations.

## Schedule

It is planned to finish all documents related to the test plan by June 2013. One of the documents will contain the detailed schedule of the project.

At the end of the project a detailed report which includes all results of the model analysis and the evaluation procedure will be published.

## Detailed Documentation

The details of the project will be laid out in a series of documents, all focusing on individual aspects the project. Currently the following documents are available:

### AVHD Project Synopsis (this document)

This document provides a high level overview of the project.

### VQEG Definitions

VQEG uses specific terminology. Important definitions and abbreviations are described in this document.

Note: This document is not specific to the AVHD project!

### AVHD Detailed Description of Test Conditions

Describe applications, resolutions, temporal structure and distortions we are looking at. Also, the procedures for PVS creation should be mentioned here. Limits of source sequences (SRCs), processed sequences (PVSs) and test conditions (HRCs) are described. This is the “handbook” for data base generation and model designers.

### AVHD Subjective Test Method tbd.

This document describes the subjective method used to generate subjective audio-visual databases used for the training and validation of the AVHD model.

### AVHD Model Requirements tbd.

This document describes the input and output of the models as well as other aspects which are important with regard to the implementation of AVHD models. Only implementation related aspects are mentioned.

### AVHD Data Analysis tbd.

This document describes the statistical procedures used to characterize the proposed AVHD models. It will most likely be a reference to P.1401.

### AVHD Test Plan tbd.

This document describes how models shall be developed (competitively/collaboratively) and validated, as well as the schedule and other organizational aspects. The subjective method, model requirements etc. are references to other documents listed here.