Audiovisual experiments:
For VQEG Activities

Orange Labs
WYCKENS Emmanuel, FOURNIER Jérôme, GICQUEL Jean-Charles

June 2009, BERLIN
SAMVIQ (Subjective Assessment Methodology of Video Quality):

- **Context**
  - Discriminate video or audiovisual quality, in order to give a very simple conclusion.

- **Overview of SAMVIQ.**
  - Standard ITU-R BT.1788 (for video only)
  - Continuous quality scale (0 to 100) with 5 Quality Items
  - Global evaluation from 10 to 20s
  - Discard methodology (better than ITU BT 500).
  - Random Access to the test conditions.
  - Low and High quality anchors.
  - Explicit reference available.
  - The observer manage their subjective test.

- **Goals**
  - Evaluate video encoding chain
  - Comparison between encoders performance.
  - Impact with or without transmission IP or radio errors.

- **Numbers of observers**
  - 15 no experts viewers after rejection method applied.
General Environnement 1/2:

- **Test instructions**
  - A very simple and short question without guidance. NO indications about the artefacts.

- **Rooms illumination and viewing conditions**
  - Respect ITU-R BT. 500.
  - Using a pluge patterns to setup the display.

- **Working**
  - SAMVIQ is implemented in SEOVQ software (PC).

- **Display available:**
  - CRT, LCD for SDTV application
  - LCD, PLASMA SDTV/HDTV application.
  - PC screen for multimedia application
General Environnement 2/2:

- Capacities
  - Playback in real-time in raw audio and video samples (up to 1920x1080p60).

- Players:
  - DVS Pronto disk arrays,
  - Video cards AJA, Bluefish.
  - Windows media player, RealOne, QuickTime.

- Audio channels.
  - Often stereo, possible to work in multi-channels.

- Samples.
  - No decoding application during a test, all sequences are decoded before subjectives tests.
For multimedia context 1/2

- Video Framerate.
  - Can be mixed in a same subjective test.
- Video formats
  - QCIF to VGA formats (can be mixed in the same test).
- Audio sampling rate.
  - Often 48 khz, but sometimes lower for mobile application.
- Audio bitrate.
  - Can be several
- Headphones or speakers?
  - Audio level is adjusted by the observers.
  - Mono or stereo signal but binaural presentation.
  - For multimedia often in headphones
For multimedia context 2/2

- Viewing distance.
  - For multimedia: Not fixed, the observers can adjust their own viewing distance according to the image size.

- Image size.
  - Emulation of the real image size of the terminal by modifying the resolution PC.

- Noise environment.
  - No noise audio is simulated.

- Source materials
  - Come from broadcast solution, or low cost camera (introduce blur).
  - Using low to high complexity scenes.
SAMVIQ : Interface in SEOVQ software (for PC display)
Audiovisual test: example of intrinsic results

Audiovisual test (SAMVIQ)
Comparison between video codecs
(PC screen)

Video Codec 1
Video Codec 2
Video Codec 3

Explicit reference QVGA/PCM 48 Khz
Hidden reference QVGA/PCM 48 Khz

Mean over 6 video sequences

Global bitrate (audio+video) Kbps

Even if the intrinsic video quality is of lower than C2. The global audiovisual Codec 1 + audio CA1 32 kbits/s is better than Codec 2 + audio CA1 24 kbits/s