

# Documentation for Psytechnics' subjective experiments in the VQEG Multimedia Project

Author: Quan Huynh-Thu

Email: [quan.huynh-thu@psytechnics.com](mailto:quan.huynh-thu@psytechnics.com)

Date: September 7<sup>th</sup> 2007

## About this document

This document provides additional information about the test material produced by Psytechnics for their subjective experiments.

The complete test designs are provided in the Excel document 'Psytechnics\_VQEG\_test\_design\_r2.xls'.

Material was produced for 3 experiments: 1 QCIF, 1 CIF, and 1VGA (all using SRCs at 25fps).

QCIF: using SRCs in pool QCIF\_A

CIF: using SRCs in pool CIF\_E

VGA: using SRCs in pool VGA\_C

## List of SRCs

### QCIF experiment

The following list of SRCs is used for the filenames which follow the notation **q01**\_SHH.avi. "S" denotes the SRC number and "HH" is the HRC number (where HRC 00 is used for the hidden reference).

SRC #	Original name of sequence
1	CRC_SRC_carrousel25fps_qcif
2	IRCCyN_SRC_Gob2psy1_qcif
3	ITU_SRC_BicycleRace_qcif
4	OPT_SRC_010_qcif
5	OPT_SRC_016p_qcif
6	PSY_SRC_skidh02_qcif
7	SQ_SRC_Living_Room_qcif
8	TW_SRC_01_qcif

### CIF experiment

The following list of SRCs is used for the filenames which follow the notation **c01**\_SHH.avi. "S" denotes the SRC number and "HH" is the HRC number (where HRC 00 is used for the hidden reference).

SRC #	Original name of sequence
1	FT_SRC_visio_cif
2	NTIA_SRC_heli0225fps_cif
3	OPT_SRC_009_cif
4	OPT_SRC_015p_cif
5	PSY_SRC_ccski01_cif
6	PSY_SRC_festi01_cif
7	SVT_SRC_ParkJoyPP_cif
8	TW_SRC_07_cif

### VGA experiment

The following list of SRCs is used for the filenames which follow the notation **v01\_SHH**.avi. “S” denotes the SRC number and “HH” is the HRC number (where HRC 00 is used for the hidden reference).

SRC #	Original name of sequence
1	ITU_SRC_Popple625_vga
2	OPT_SRC_004_vga
3	PSY_SRC_festi02_vga
4	PSY_SRC_skidh03_vga
5	SVT_SRC_closeuplegs2_vga
6	SVT_SRC_CrowdRunP_vga
7	TW_SRC_02_vga
8	TW_SRC_05p_vga

## Experimental designs

Minor modifications were applied in the initial experimental designs for QCIF and VGA experiments because some HRCs produced visual distortions that did not comply with the VQEG Multimedia Test Plan (mostly the original HRCs produced too many frame freezes/skips beyond the limits accepted by the Test Plan). The following modifications from the initial designs were applied:

### QCIF experiment

The HRC with transmission errors using PLR3 = 10% packet loss / bursty distribution was replaced by PLR3 = 1% packet loss / random distribution.

### CIF experiment

No change

### VGA experiment

The frame rate was changed from 12.5fps to 5fps for the HRC using VC1@128kbts/s and the HRC using RV10@128kbts/s.

## Registration/delay check

The temporal delay of all PVSs was checked using the software 'mm\_check\_delay' provided by NTIA/ITS:

- QCIF:
  - One PVS (q01\_814.avi) was initially flagged as 'Fail' by the software. A visual check (frame by frame in VirtualDub) was performed, which indicated that the PVS actually complied with the Test Plan (excessive delay was wrongly indicated by the software because of very strong spatial artifacts that caused the software to report inaccurate delay on some frames).
  - All other PVSs passed the check.
- CIF:
  - All PVSs passed the check
- VGA
  - One PVS (q01\_414.avi) was initially flagged as 'Fail' by the software. A visual check (frame by frame in VirtualDub) was performed, which indicated that the PVS actually complied with the Test Plan (excessive delay was wrongly indicated by the software because of very strong spatial artifacts that caused the software to report inaccurate delay on some frames).
  - All other PVSs passed the check

## Overview of HRCs

### *Coding*

The following software was used for encoding:

- QuickTime Pro version 7 for MPEG-4, H.264/AVC and H.263
- Windows Media Encoder Series 9 for VC1
- Real Producer 10 for RealVideo10

For the QCIF experiment, all encoded files were encoded to be 3GPP-compliant.

## ***Transmission errors***

Transmission errors were introduced by streaming the encoded video over Darwin Streaming Server and by introducing packet loss with different distributions and loss ratios. The streamed video was played in QuickTime and captured at constant frame rate (25fps).