



Video Clarity



Tools for Video Analysis

- A Silicon Valley based group of video experts
- Started in 2003, first product shipped in 2004
- Added Objective Metrics starting in 2008
- Introduced Monitoring products in 2009
- Customers are industry leaders

Customers

(partial list)



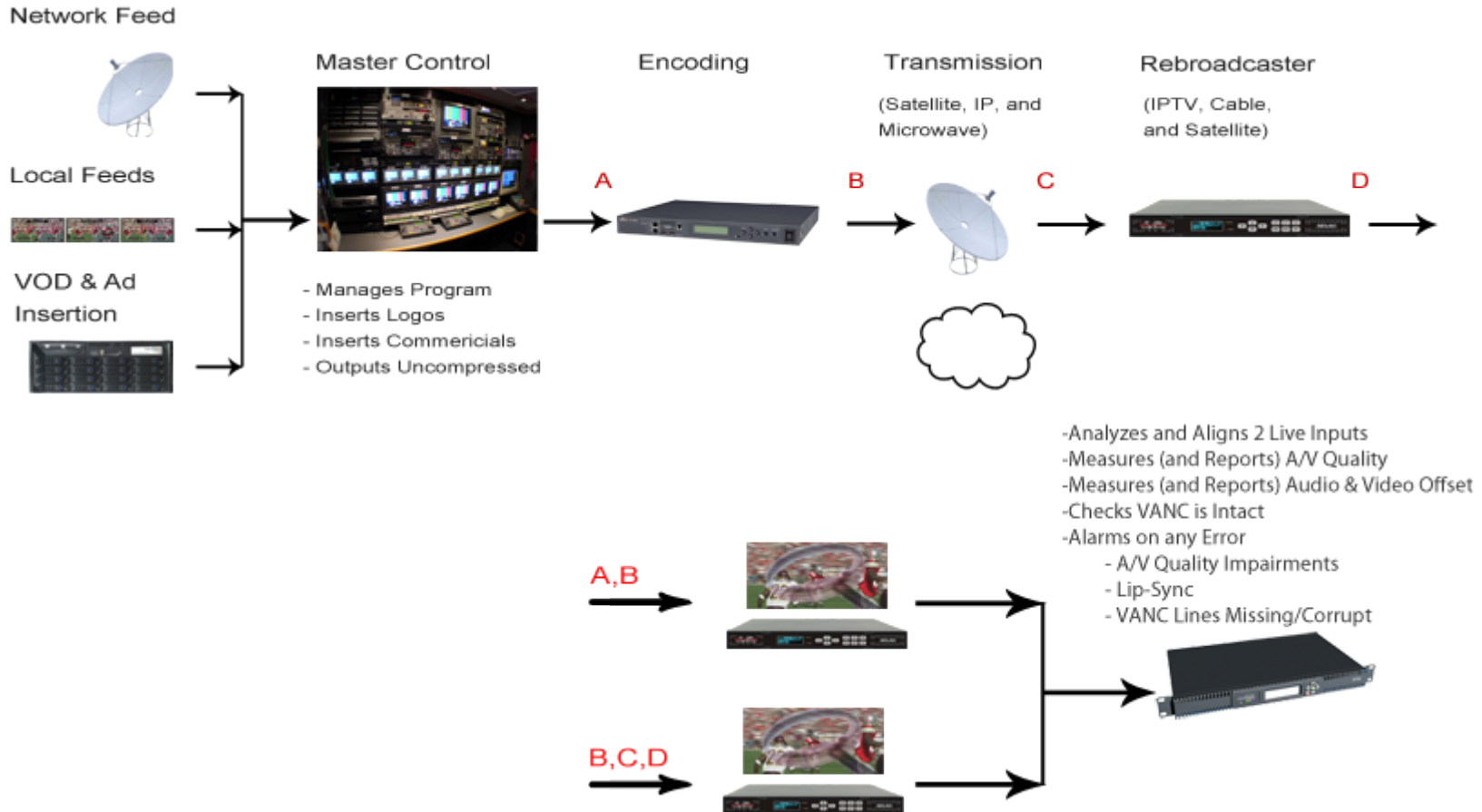
- Real-time, full-reference monitoring
 - Measures audio & video quality
 - Measures VANC
 - Checks A/V Sync



- Reports the quality scores and alerts on problems
- Saves sequences on detected problems

- Long duration testing
 - Continuously aligns the audio and video
 - Saves the sequences only when an error is detected
 - Reports the quality scores
 - Reports alignment, drops in audio/video quality
- Finds in-plant transmission, quality issues
 - Can be used to check the quality at different points throughout the network.

RTM – Broadcast Network Testing



- ✓ Monitor A/V quality degradation from point A or B to B, C, or D
- ✓ Compare same broadcast transmissions from different providers

RTM Graphical Interface

Video Clarity Realtime Monitor 1.0 03/15/2010

Input 1 video signal: 1920 x 1080 29.97 Hz. Input 2 video signal: 1920 x 1080 29.97 Hz.

Status:

- Start Time: 2009/02/16 11:49:24 Run Time: 00:01:00:00
- Video Impairments: 0
- Audio Impairments: 0
- Audio Sync Errors: 0
- VANC Errors: 0
- Invalid Input Signal: 0/0

Control:

Alignment:

- Be-Align All
- Align Video
- Align Audio

Last Dynamic Realignment:

- Video Offset: 174
- Audio Offset: 1427 0.8918 s / 29.7292 ms
- Spatial X: 2 Y: 0

Video Quality:

- Video: In:145129 I:42.93 Cb:47.56 Cr:46.87
- WANC: Fr:045139 Score:0.00
- 25 Threshold
- 6 Duration (Frames)

Audio Quality:

- A1: 93.43 20 Threshold 20 Duration (Frames)
- A2: 92.97
- A3: 0.00
- A4: 0.00
- A5: 0.00
- A6: 0.00
- A7: 0.00
- A8: 0.00

Video Clarity
Tools For Video Analysis

- 0 A/V Quality Problems
- 0 VANC or Lip-Sync Issues
- Run Time 1hour 20minutes

- Video Offset 174 frames
- Audio Offset 29.7ms relative to Video (audio is ahead by 29.7ms)
- Spatial Offset is X=2

- Audio & Video Server, Recorder, File Importer
 - HDMI, SDI-3G, HD-SDI, Component, Composite I/O
 - DVI output
 - Uncompressed/Compressed file converter
 - Support RGB or YUV Uncompressed data
- Objective Full Reference Quality Checker
 - Automatic Audio/Video Alignment
 - DMOS
 - JND (PQR)
- Viewer
 - Multiple Viewing Modes



ClearView Shuttle

Portable cube shaped unit, high storage, plays DVI up to 60Hz or has 1 broadcast I/O for record and playout up to 1080i



ClearView Extreme

3RU, high storage, plays DVI up to 120Hz or has 2 broadcast I/O for dual record, dual playout, playout and record up to 1080P



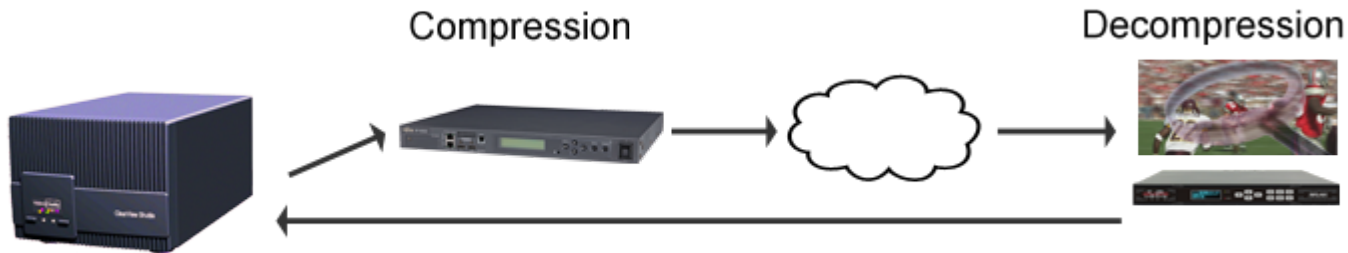
ClearView QA

Small 1 RU form factor, records, aligns and compares using PSNR for pass/fail testing.

- Video Server/Recorder
 - Synchronized dual output video server (3-D, stereoscopic)
 - Play to Encoder (processing units) Record their output (play & record)
 - Record 2 inputs

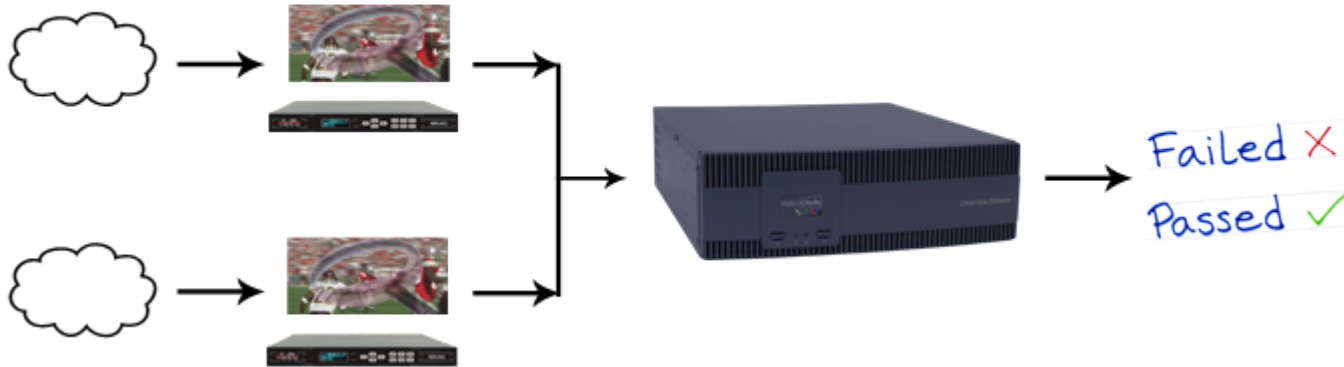
- In depth A/V analysis
 - Align Audio & Video
 - Calculate JND, DMOS, and PSNR scores
 - View Images in multiple viewing modes

ClearView – Encoder Testing

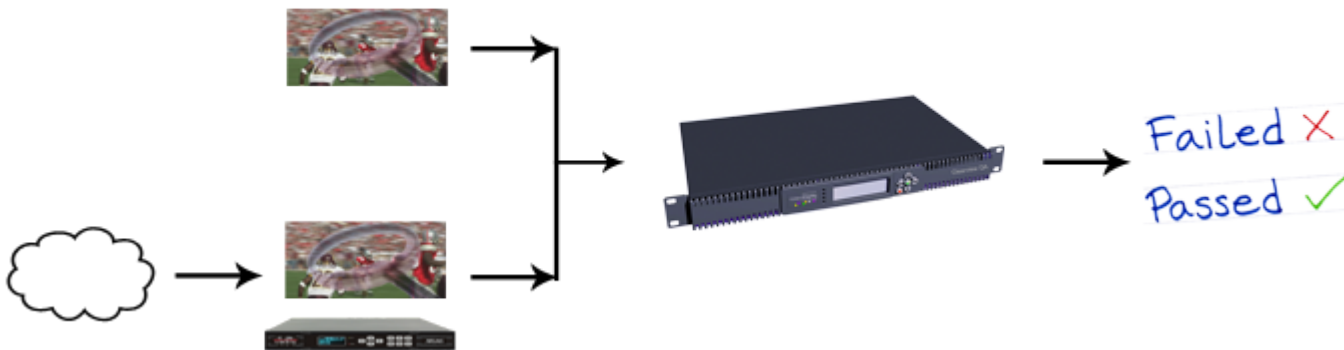


ClearView – Pass Fail Testing

Reference & Processed Sequences



Reference File & Processed Sequence



ClearView Graphical Interface

Video Clarity

Tools for Video Analysis

The screenshot displays the Video Clarity ClearView 6.0 software interface. The main window is titled "Video Clarity ClearView 6.0 10/07/2009".

Left Panel (Settings):

- Video Output:** Output Device (Broadcast Output Module), Video Format (1080i 50.00 Hz), Analog Output (1080i SMPTE).
- Memory/Disk:** Library (H:\1080 50 UVV\), Image Fmt (YCbCr 8 bpc), W (1920), H (1080). A table shows memory and disk usage: Total (257 MB, 65 Frames, 2077344 MB, 532916 Frames), Used (0 MB, 0 Frames, 10535 MB, 10503 Frames), Free (257 MB, 65 Frames, 2066809 MB, 522213 Frames).
- File Input:** Filename, Width (0), Height (0), Bkdepth (0), Codec, Frame Rate (0), Bit Rate (0), Sequence Name.
- Record:** ClearView Output (Broadcast | DVI Input), To Disk (checked), A/OI, Use Metric Adjustments, Library (F:\DMOS-3ND-400-Test), Sequence (Recorded Sequence 4).

Center Panel (Main View):

- Thumbnail images: Info_w\FEG_BQ, Ducks_w\FEG_BQ, Dance_w\FEG_BQ.
- Main video preview showing two dancers in yellow costumes on a stage with "Embraer" banners.
- View Mode buttons: A Only, B Only, Side-by-Side, Seamless-Split, Split-Mirror, A-B.
- Viewport A: G: Dancer_Source, Viewport B: H: Dancer_HQ34_HQ.
- Playback controls: First, Jog-, Play-, Stop, Pause, Play, Jog+, Last.
- Timeline with a green waveform and time markers (0.78, 0.79).

Right Panel (Tools For Video Analysis):

- Playback Parameters:** Colour/Overlay, Preview Update, Zoom (Split, Field/Frame, Play Mode), Zoom (1), Disable Zoom/Split.
- Objective Metrics:** Spot NR, Temp NR, PSNR, JND, DMOS, A/B, Pa/Wa, On/Off, Spatial, Threshold (-1.00), Failures (0), Graph, Log...
- Calculations Finished:** Table with columns F1/F2, P2, Min, Max, Avg. Values: 1.7564, 1.8233, 0.9902, 2.7700, 2.0328.
- Clip Alignment:** Temporal Align, Threshold (0), Speed (Fast, Last), A (1.00, Set, 0, Set, 250), B (1.00, Set, 0, Set, 250), Lock A/B Spd, Save alignment changes.
- Metric Adjust:** Spatial Align (X: 0, Y: 0), Normalize (Y/G: 0, Cb/B: 0, Cr/R: 0), X (0), Y (0), W (1920), H (1080), 0/0 dop, Config, Hotkeys, 11.84 fps, Reset, Exit.

- High-quality, reliable video quality analysis and monitoring systems
- Product line is configurable for simple to complex testing requirements
- New products and features will continue to be added for a growing number of industry leading customers

Thank You

