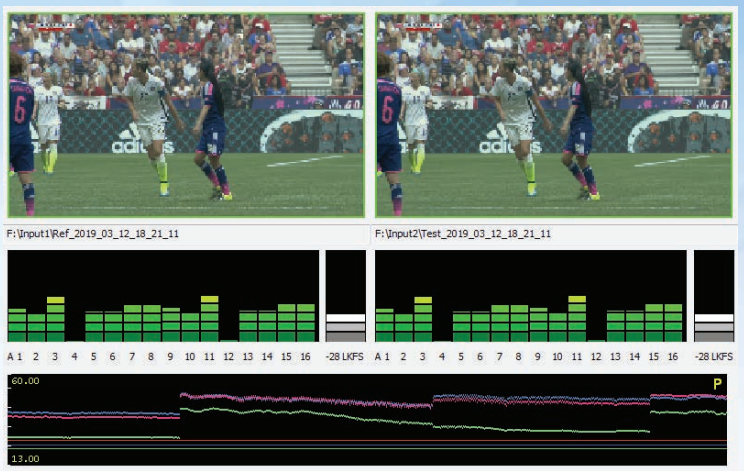
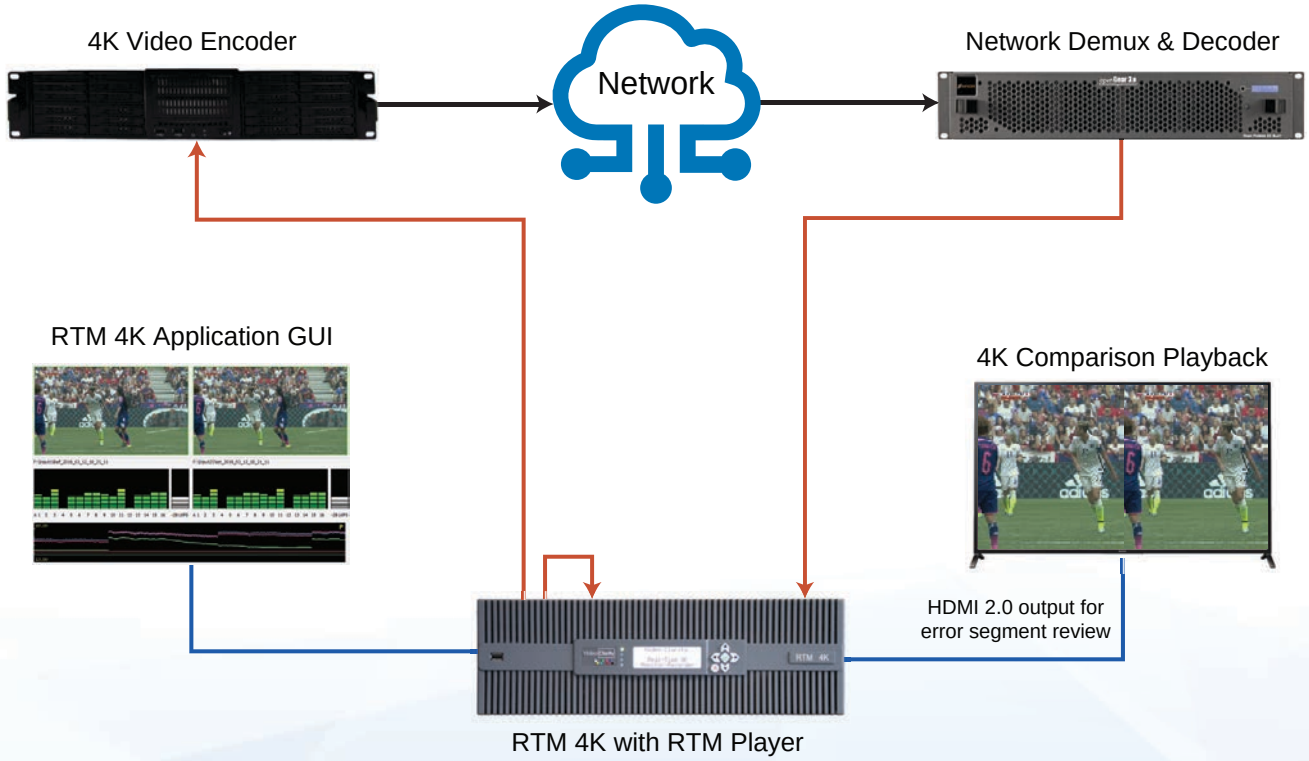
RTM 4K - Real-Time 4K Device And Network Quality Testing

A real-time test of audio and video quality provides users with significant benefits including...

- The ability to perform long term quality testing on fully uncompressed video and audio for any length of time.
- A full-reference test that compares video and audio source to a return channel after processing so that highly accurate measurements and fault thresholds can be applied for automatic event recording.
- Quality measurements that are not influenced by the creative effects applied to source video material, saving valuable time and effort with no false positives for every test run.



The RTM 4K applications include uncompressed 12G, 6G, and 3G SDI device testing, encoder/transcoder testing, network path testing, and set top box or handheld device media testing for up to 4Kp60 resolution video with associated embedded audio and ancillary data. It will perform a real-time video PSNR or DMOS along with audio quality, lip sync, audio program loudness metrics simultaneously with VANC line data accuracy test. The included RTM Player provides recorded error event playback as well as a source output to the device test chain without the use of external video hardware.



Real-Time Quality Testing for Network, Encoder, Transcoder, and Handheld Devices

Video Clarity
Tools for Video Analysis

RTM 4K - Features and Product Specifications

RTM 4K Features

- RTM 4K GUI provides visual thumbnail of source and test video inputs with instant test score updates
- RTM Manager provides browser control with real-time score graphs for video quality and lip sync tests
- RTM Player allows drag and drop of test logs for comparison playback of recorded error sequences
- PSNR or MS-SSIM metric on DMOS or native scale is selectable as the video quality test in RTM 4K
- aFreq is applied for audio performance and lip sync measurement with audio/video offset thresholds
- aPeak is applied for LKFS audio program loudness measurement with min and max thresholds
- VANC data check is selectable per line and is measured for data payload accuracy

RTM 4K System Back Panel and Specifications

Model: RTM-S8085
Storage: 12.0 TB
Power: 100 - 240VAC, 47-63Hz, 600W Max
GUI Display Output: HDMI or DisplayPort
Includes: RTM System Guide PDF, 3RU rack kit, keyboard, mouse, 5 HD-BNC to BNC cable kit, USB to GNIC adapter, RTM Log Grapher, RTM Manager, Scheduler, Command Line API, and REST API

Video I/O: SMPTE 259/292/296/424/425/2082
- 4 12G-SDI programmable interfaces (HD-BNC)
- Input source & test signals up to 2160p 60Hz each
- 1 HDMI 2.0 4K video & audio playback output

Audio I/O: 24 bit, 48 KHz
- 4 12G-SDI programmable interfaces (HD-BNC)
- 16 channels of embedded audio per HD-BNC
- Dolby® Digital Plus (input decoder incl.) or PCM

Options: CV-Importer, CV-HDMI-I-4 for HDMI input

Ethernet IP Inputs For MPEG Stream Testing or Control: 2 - 10G IP - SFP+ (cages only)
1 - 2.5G IP - RJ45
Dimensions: 17" W x 5.25" H x 20.15" D (3RU)
43 cm x 13.5 cm x 51.4 cm
Weight: 31 lbs, 14.1 Kg
Operating Temperature: 0 - +40 Celsius
Storage Temperature: -20 - +50 Celsius
Relative Humidity: 5-95%, non condensing

Included CV-SDI-IO-12G:
RTM 4K systems apply one interface module with
- Five HD-BNC to BNC cables
- HDMI cable

Digital Video: 4 HD-BNC input/output selectable - 12G-SDI, 3G-SDI, or SD-SDI
- Supports YCBCr 4:2:2 8/10-bit - SMPTE 259, 292, 296, 424, 425a/b, 2082, 4K as 2SI

Digital Embedded Audio: 16 channels - SDI embedded input and output
HDMI 2.0: 1 output, up to 4096x2160p60Hz 4:2:2 on standard HDMI connector
- HDR Infoframe metadata compatible with HDMI 2.0a/b - CTA-861.3, CTA-861-G

Reference Input: 1 HD-BNC, Black (1V), Composite (2 or 4V), or Tri-Level Sync (1V)

Digital Video Formats: 525i 59.94Hz, 625i 50Hz
720p 60, 59.94, 50Hz; 1080i 60, 59.94, 50Hz
1080p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz
2160p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz
Digital Audio Format: 24bit, 48KHz PCM, or DD+
Timecode: -SMPTE-12M on SDI, or LTC BNC input

CV-IP-IO-UHD Module Option:
25G IP media interface module requires one or two SFP28 purchased separately and applied for input/output
Note: IP only system available as model RTM-S8085-IP

Video I/O: 25G Ethernet applying SMPTE ST 2110-20 and 2022-7 media transport
- Up to 2 UHD, HD, or SD video/audio programs input or simultaneous one in / one out
- Up to 2 UHD, HD, or SD video/audio programs output with ClearView application

Note: Multiple input and output functions for UHD formats are system dependent
Media Transport Interface: 2 x SFP28 Cages - SFPs not included
Reference Input: Integrated hardware for network PTP according to ST 2059-2
VANC and Timecode: SMPTE ST 2110-40 record and play

Digital Video Formats: 525i 59.94Hz, 625i 50Hz
720p 60, 59.94, 50Hz; 1080i 60, 59.94, 50 Hz
1080p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz
2160p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz
Digital Audio I/O: 16 channels input and output
- Formats - 24bit, 48KHz PCM, or Dolby Digital+
- According to ST 2110-30 and ST 2110-31

CV-HDMI-I-4 Module Option:
Multiple format capture interface with four programmable inputs

Digital Video: Two HDMI 2.0 and two 1.4, up to two 4K/UHD, or four SD or HD inputs
-Input image formats up to 4096x2160p60 YCbCr 4:2:2 10-bit on Type A HDMI
Digital Audio: 8 channels per program input **HDR Metadata:** CTA-861.3, CTA-861-G

Digital Video Formats: Same as CV-SDI-IO-12G
Digital Audio Formats: 16 and 24-bit, embedded HDMI audio, 48 KHz, synchronous per HDMI input

RTM Player and RTM-P1:
RTM Player for test review playback is included. *RTM-P1 is the source playback option for uncompressed sourcing during RTM test operations, single instance
RTM-P1 Includes: HD-BNC loop cable

RTM-Player and RTM-P1 Video Output:
-Playback with supplied loop back cable for SDI systems to source input for 4K, HD, or SD video format testing in RTM
-The RTM-P1 option is not applicable to the ST 2110 interface
Reference Input: Black burst or tri-level sync on HD-BNC
Control: Via RTM Player GUI, Command Line, or REST API

Digital Video Formats: 525i 59.94Hz, 625i 50Hz,
720p 60, 59.94, 50Hz, 1080i 60, 59.94, 50Hz,
1080p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz,
2160p 60, 59.94, 50, 30, 29.97, 25, 24, 23.98Hz
Digital Audio: 16 channel, 24bit, 48KHz PCM, or DD+
VANC: All VANC lines playback