DVEO

Q-CHECK IP: HEAD END

The Q Check IP: Head End is a professional tool for analyzing and visualizing multiple transmissions. It is designed to monitor and analyze transmissions anywhere.

PRODUCT DESCRIPTION

Real-time video transmission analysis system, multi-tile, allows simultaneous analysis and monitoring of 65 video and audio streams in MPEG-2 or H.264 format, with error logging and reporting functions such as video freezing, black screens, video loss, audio loss, subtitle loss, and audio levels in multi-program IP transmissions.

This unit supports simultaneous analysis of 65 SD (D1) streams and comes with a high-end NVIDIA® graphics card. It supports audio alarms, SNMP messages, and email alerts. Compatible with PSI, SI, DVB, and ATSC tables.

KEY FEATURES

- Designed for continuous operation, 24/7/365.

- Input: IP - supports UDP and RTP/UDP protocols via two 10 GigE interfaces.

- 3 types: analyzer only, viewer only, or both.

- Supports MPEG-2, H.264/MPEG-4 AVC, and/or H.265/HEVC transport streams.

- Supports 4K in traffic analysis, but not in a video wall.

- Decodes MPEG-2, H.264, and H.265 video thumbnails

APPLICATIONS

- Analysis and monitoring of multiple MPEG-2/H.264/H.265 programs delivered over IP for IPTV, OTT, mobile, and telecommunications.

IP LAYER ANALYSIS

Media Delivery Index (MDI) – IP Only

The Q Check IP: Head End computes the Media Delivery Index on all IP flows. The MDI includes two measurements: Delay Factor (DF) measures the IP packet jitter Media Loss Rate (MLR) measures the packet loss over time.

Bandwidth Monitoring

The Q Check IP: Head End will monitor the bitrate of all flows in the network. The operator can create a profile to specify the minimum and maximum bitrates allowed for specific media flows and test if the actual bitrate is within the bands, and send an alarm if the bounds are violated.

COMPREHENSIVE TS MONITORING

Real-time monitoring of MPEG transport stream layer on all services in the network:

• Supports MPEG-2, H.264, and H.265 video compression standards.

• Supports MP3, AAC, AAC+, AC3 audio encoding standards.

• Standard compliance based on TR 101 290 and ATSC-78.

• Bandwidth utilization and PID monitoring.
• PCR clock analysis.

• Elementary stream buffer analysis.

• Real-time PSI/SI table decoding and analysis.
• EPG – decoding and display.

• Metadata monitoring with closed captioning with DVB subtitles.

• If viewer turned off, can analyze up to 200 streams in real time.

• Jitter Measurement.

COMPREHENSIVE PSIP TABLE MONITORING

• Real-time monitoring, decoding and analysis of all PSIP tables, including STT, MGT, TVCT, CVCT, RRT, EIT, ETT, DCCT, DCCSCT, as well as all PSIP table descriptors.

• The decoded tables are displayed in tree views for users to drill down and find detailed content information.

• Real-time measurements of table interval and reports of missing mandatory tables and interval out-of-bound errors.

• Generates EPG view based on PSIP tables.

REMOTE USER INTERFACE

The Remote View application can be used to remotely view test results and control the monitoring system. Unlike a typical browser-based client view, the Remote View comes with a fully featured Windows® application, and dynamically displays video thumbnails and all test results. In addition, it streams audio and video data from the system to the client PC over an IP network connection, allowing continuous decoding of a video program for visual verification of Quality of Service (QoS).

ERROR LOGGING AND ALARMS

All errors detected are logged in a database pre-installed in the system. The logging feature allows the operator to search specific errors based on various searching criteria, including error code and time period the error has occurred. Selected errors can be exported to a text file. The Q Check IP: Head End allows users to create IP flow and transport stream profile, and the system will test the actual input data against user entered profile, record and alarm any deviations from user defined profile. The alarm triggers can be configured based on the overall TS quality score or specific errors. The alarm message can be sent by email and/or SMS.

OPTIONS

• Q Check web service for managing video monitoring/multiview – provides an internet gateway to remotely access and/or configure Q Check systems.

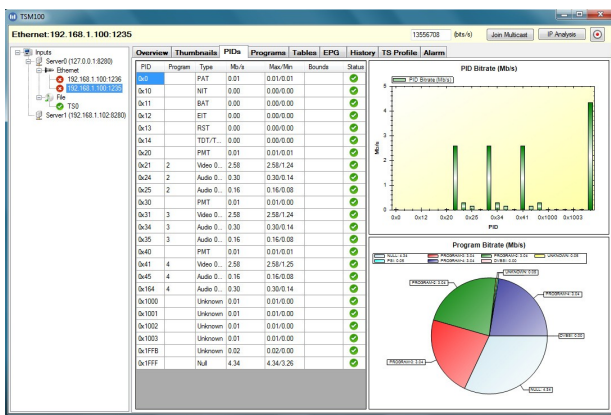• Loudness monitoring and logging system.

GUIS AND HIGHLIGHTS

Multi-viewer Display:
Includes optional audio loudness monitoring and display.

TS Analysis View:
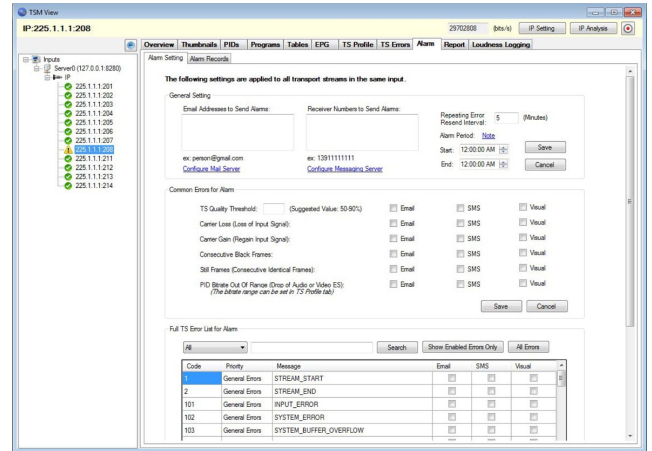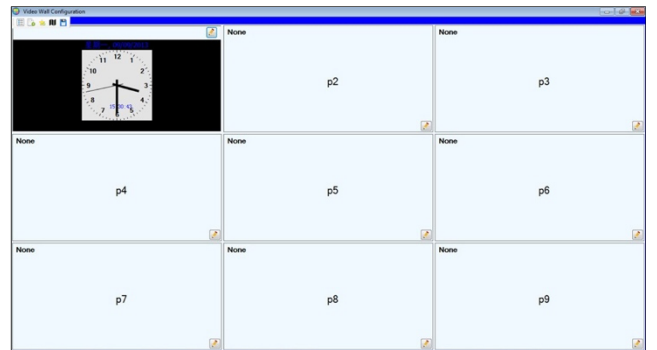• Supports both ATSC and DVB TS streams.
• Includes IP layer and HTTP layer analysis.
• Supports full remote operation.
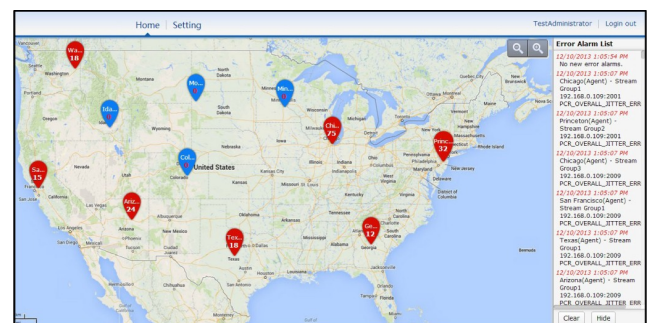

Alarm Configuration:

Multi-viewer Configuration:

APPLICATION EXAMPLE

Multiple Q Check systems can be connected to a central web server (optional software) which provides a single data point for monitoring video services in different geological locations.

CAPABILITIES

Module	Functional Group	Feature	DVEO Model 1	DVEO Model 2	DVEO Model 3	DVEO Model 4
Monitoring Capabilities	TR 101.290	TR 101 290 priority 1/2/3 configurable on TS/Service/PID level	✓	✓	✓	✓
	Timing (beyond TR 101.290)	PCR accuracy and repetition rate views	✓	✓	✓	✓
		PTS-PCR timing	✓	✓	✓	✓
	Bitrate monitoring	Bitrate graphs on TS, Service, PID and pool level	✓	✓	✓	✓
		CBR/VBR measurements	✓	✓	✓	✓
	Snapshot comparison	Monitor TS, PSI/SI and component signaling according to known good (editable) snapshot, with ability to alert on descriptor and table version properties in a very granular way	✓	✓	✓	✓
	PDI/SI analysis	TS structure tree breakdown into descriptors	✓	✓	✓	✓
		Hexadecimal view	✓	✓	✓	✓
	EPG view and monitoring	EPG grid display on TS and service level	✓	✓	✓	✓
	Conditional access	EMM availability	✓	✓	✓	✓
		EMM signaling in CAT	✓	✓	✓	✓
Content Verification	Video content checks	Freeze frame/black frame detect in background process	✓	✓	✓	✓
		Picture format	✓	✓	✓	✓
		Stream ID	✓	✓	✓	✓
	Video content analysis	MPEG2 sequence header info (VBV buffer size/width/height/ aspect ratio/frame rate)	✓	✓	✓	✓
	Audio content checks	Audio level and silence detect in background process	✓	✓	✓	✓
		Loudness monitoring (short, momentary and station loudness)	✓	✓	✓	✓
		Stream ID	✓	✓	✓	✓
	Audio content analysis	AC3	✓	✓	✓	✓
	DVB subtitle	Subtitle visualization in mosaic	✓	✓	✓	✓
	Teletext support	EBU subtitles visualization in mosaic	✓	✓	✓	✓
Codec Support	Video codec support	MPEG-2 (simple/main/high) 4.2.0 – 4.2.2	✓	✓	✓	✓
		MPEG-4 v2	✓	✓	✓	✓
		H.264/AVC (main/high) 4.2.0	✓	✓	✓	✓
		H.265/HEVC (main 10) 4.2.0	✓	✓	✓	✓
	Audio codec support	MPEG-1 Layer 2	✓	✓	✓	✓
		MPEG-2	✓	✓	✓	✓
		AAC (ADTS/LATM/LAOS)	✓	✓	✓	✓
		HE-AAC (2.0 / 5.1)	✓	✓	✓	✓
		AC3 (2.0 / 5.1)	✓	✓	✓	✓
Visualization Features	Single service display	Show view, display a single service	✓	✓	✓	✓
	Multiviewer display	SD MPEG-2/H.264 30/30; HD MPEG-2/H.264 9/7	✓			
		SD MPEG-2/H.264 40/40; HD MPEG-2/H.264 10/8		✓		
		SD MPEG-2/H.264 60/60; HD MPEG-2/H.264 23/18			✓	
		SD MPEG-2/H.264 70/70; HD MPEG-2/H.264 36/26				✓
		Multiple display outputs 1-4	✓	✓	✓	✓
		Alarm status mapped to tile border color	✓	✓	✓	✓
		Mosaic layout tool	✓	✓	✓	✓
		Configurable multiviewer layout using preset editors and service allocation maps	✓	✓	✓	✓
		Full frame rate decode	✓	✓	✓	✓
		Audio bars/stereo and multichannel	✓	✓	✓	✓
		EPG p/f on UMD	✓	✓	✓	✓
		Service name on UMD	✓	✓	✓	✓
		TXT subtitle viewer	✓	✓	✓	✓
		DVB subtitle viewer	✓	✓	✓	✓
		TS status block (inherit color from probe alarm status)	✓	✓	✓	✓
		Clocks	✓	✓	✓	✓
		Arbitrary text panel	✓	✓	✓	✓
		Modesty filter on video, mask sensitive content	✓	✓	✓	✓
		JPEG generation from mosaic (update interval 8 seconds)	✓	✓	✓	✓
	Service recording	Service recording as TS from multiviewer	✓	✓	✓	✓
TS Interfaces	TS interfaces	File input (reads input TS from files)	✓	✓	✓	✓
		TSoIP (TS over IP, UDP/RTP/FEC support)	✓	✓	✓	✓
		ASI input (188/204 bytes support)	✓	✓	✓	✓
Miscellaneous Features	Alarm specifics	Include or exclude periods on service and component level	✓	✓	✓	✓
	TS recording	Manual recording. Saved to local HDD for (FTP) fetch.	✓	✓	✓	✓
		Constant (manual triggered) recording of 1 stream to disk (alarm and measurement functions inhibited)	✓	✓	✓	✓
	Streaming	Stream of de-muxed service as SPTS including all PSI/SI. User definable processing of the service through customizable methods and 3rd party processing utilities (e.g. FFMPEG transcode). Controlled via GUI, Gateway or from 3rd party using SOAP interface.	✓	✓	✓	✓
	PSI/SI analysis and reports	SNMPv2 trap and query (3 trap destinations)	✓	✓	✓	✓
		E-mail alarms and reports with configurable user/time/severity filtering	✓	✓	✓	✓
		XML export of alarm and threshold	✓	✓	✓	✓
		Remote UI aggregation via ACC	✓	✓	✓	✓
		SQL database support Gateway	✓	✓	✓	✓
		Define PSI/SI tables as XML (import)	✓	✓	✓	✓
		Export PSI/SI tables as XML	✓	✓	✓	✓
		Alarms/PID plans/bitrates/configuration reporting	✓	✓	✓	✓
	Miscellaneous	SLA view	✓	✓	✓	✓

SPECIFICATIONS

TYPICAL CPU REQUIREMENTS FOR ANALYSIS

15 SD streams	Xeon® 4 core V5
30 SD streams	Xeon® i7 8 core
50 SD streams	Single Xeon® 16 core 2680 V
65 SD streams	Dual Xeon® 16 core 2680 V3

SPECIFICATIONS

MAXIMUM NUMBERS OF STREAM

Xeon® i7 8 core	SD MPEG-2: 30 SD AVC/H.264: 25 HD MPEG-2: 12 HD AVC/H.264: 8
Single Xeon® 16 core 2680 V	SD MPEG-2: 50 SD AVC/H.264: 40 HD MPEG-2: 20 HD AVC/H.264: 15
Dual Xeon® 16 core 2680 V3	SD MPEG-2: 65 SD AVC/H.264: 50 HD MPEG-2: 26 HD AVC/H.264: 19

SPECIFICATIONS – SOFTWARE ONLY

IP INPUT/OUTPUT

Interface	Ethernet (RJ45 u óptico), 10/100/1000 Mbps and 10 Gbps
IP	UDP Unicast or Multicast – TS over UDP, RTP, or HTTP

ADMINISTRATION

Remote Management	Via Remote TSM View Client

SYSTEM REQUIREMENTS

Memory	32 GB DDR2 SDRAM
Hard Disk	500 GB
Operating System	Windows® 7

IP INPUT/OUTPUT

Interface	Ethernet (RJ45 or Optical), 10/100/1000 Mbps and two 10 GigE
IP	UDP Unicast or Multicast – TS over UDP, RTP, or HTT

OUTPUT

VGA or HDMI	Up to four monitors via NVIDIA® graphics card
Audio	3.5 mm mini jack

PHYSICAL & POWER

Dimensions (WxHxD)	4 RU – 19 x 7 x 24.5 inches (483 x 177 x 624 mm)
Weight	43 lbs/19,5 kg
Redundant Power Supply	90 ~ 264 VAC Full Range /47 ~ 63Hz
Temperature	0°C to 50°C (32°F a 122°F)
Humidity	5% to 95% non-condensing
Conformities	UL, CSA, CE, RoHS

REAR CONNECTIONS

IP In   IP Out