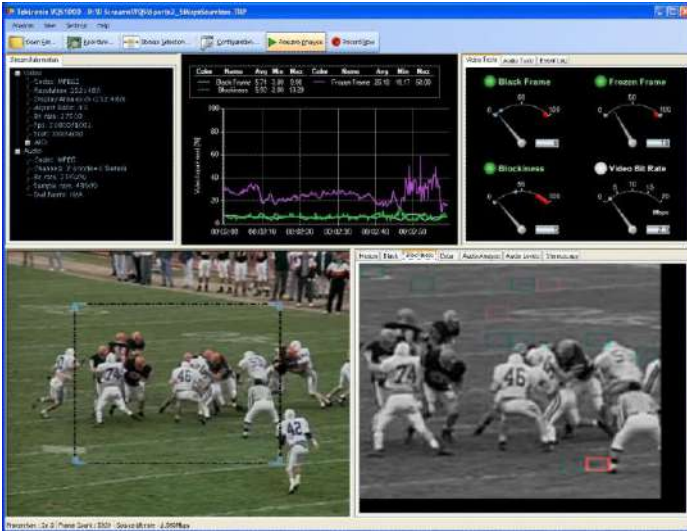


Video Quality Analysis Software

VQS1000 Datasheet



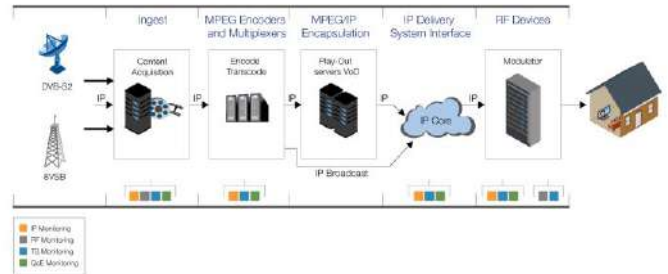
packets, CC errors, etc.) and errors which do not have a corresponding network issue and are therefore caused by an upstream encoder problem.

Applications

- Affordable QoE Monitoring - Alarms with configurable impairment magnitude, duration, and frequency thresholds can be generated to alert users to content that will impact customers' viewing and listening experience
- Network Performance Optimization - QoE and bit rate monitoring and logging enable in-service tuning of networks to deliver the best viewing experience possible within bandwidth constraints to viewers
- Remote In-service Diagnostics of Broadcast Delivery Issues - Combined with physical transport alarms from the Tektronix IPM400A or any MTM400A Series probe, operators can determine if the source of a problem is in the content (for example, over-compression) or in network distribution layers

Key features

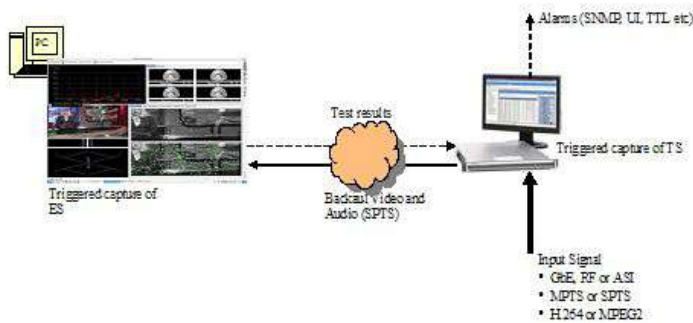
- Reliable and sophisticated analysis algorithms applied to decoded MPEG-2 or H.264 video to identify stuck, black, macro-blocking, and compression artifacts. This enables operators to distinguish between impairments resulting from network distribution versus artifacts resulting from compression.
- Industry-first unique visualization tool with innovative impairment displays highlights the location and severity of video defects, enabling engineers to clearly see and validate the presence of impairments on the image.
- Analysis of decoded MPEG-2, AC-3, MPEG-2 AAC, and MPEG-4 AAC audio to identify loudness problems in accordance with ITU-R BS. 1770/1771
- Trending of video and audio metrics to help diagnose intermittent and time related problems
- Triggered-capture of streams and logging of live data enable offline analysis of service quality issues
- Logging of live data to capture min, max, and average impairment values and bit rates at user-definable time intervals enables long-term quality of experience for a service to be assessed and optimized
- Connect either directly to an Ethernet switch or integrate with Tektronix IP Video and DTV Monitoring probes
- IGMP support for analyzing multicast streams beyond the local router
- Integrate with Tektronix IP Video and DTV Monitoring probes so that QoE errors appear in the monitoring probe log interleaved with the TS and physical layer (IP and RF) QoS errors. This enables users to easily distinguish between errors that are caused by network issues (dropped



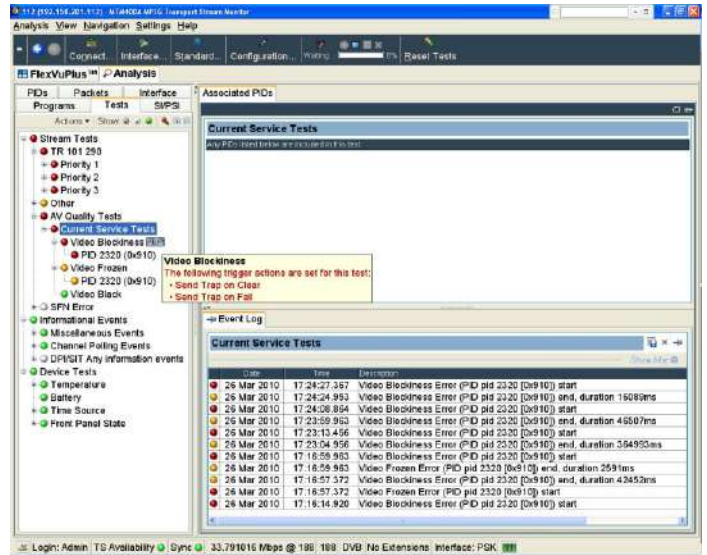
QoE monitoring in the video delivery chain

VQS1000 overview

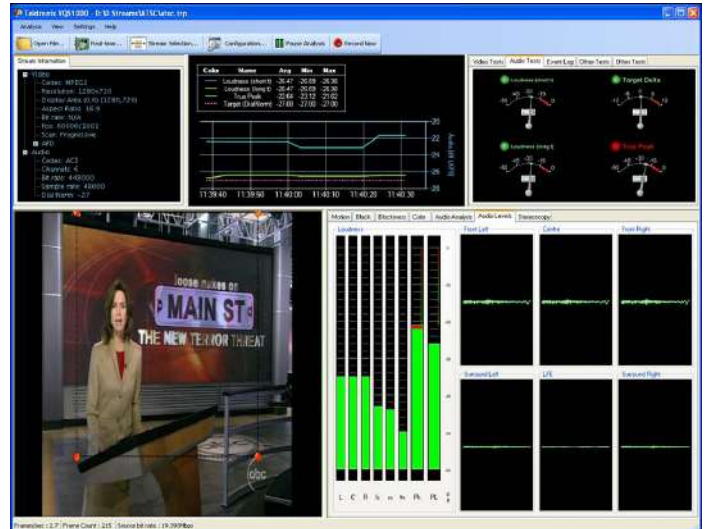
- Available for installation on the customer's own PC
- Two instances can be run per license to enable service comparison at different network locations (dependent on PC processing power and video content type)
- Triggered capture with pre-trigger buffer enables archive of impairments or offline video quality analysis to be performed
- Application can be also be used stand-alone for offline file analysis with support for MPTS and SPTS files
- Can be connected directly to an Ethernet switch. Supports IGMP for accessing remote multicast streams
- Can be used with all Tektronix DTV monitoring probe configurations using robust private backhauled video from the monitoring probes
 - QoE results are reflected in monitoring probe's Remote User Interface and event log
 - Results available to management systems through monitoring probes SNMP MIB
 - Automated round-robin polling sequentially checks services within an MPTS
 - Can be used in conjunction with the probes polling capability to sequentially test different Transport Streams carried on up to 500 IP flows (IPM400A) or up to 200 RF channel presets (MTM400A)
- Also available for use with MTS4000 Series analyzers



Configuration for use in monitoring systems



Results displayed in DTV monitor or IP video monitor user interface



Audio analysis display

Specifications

All specifications apply to all models unless noted otherwise.

Characteristics

All measurements are performed on decoded video and audio, using standards based on Tektronix proprietary algorithms.

- Video measurements are shown below:
 - MPEG-2 and H.264 codec support
 - Stuck/Frozen Video detection
 - Black Video detection
 - Blockiness/Compression artifact detection
 - Color display using Tektronix Diamond display
 - QoE dashboard
 - Display of video metadata including codec type, resolution, display area, aspect ratio, bit rate, frames per second, scan, and AFD
 - Audio measurements are shown below:
 - MPEG-2, AC-3, MPEG-2 AAC, and MPEG-4 AAC codec support
 - Loudness, true peak and deviation from Dial Norm measurements in accordance with ITU-R BS.1770/1771
 - Phase analysis using Lissajous display
 - Loudness bars and trend for each channel
 - QoE dashboard
 - Display of audio metadata including codec type, number of channels, sample rate, and Dial Norm
-

Recommended PC system requirements

- Supported OS: Windows XP or Windows 7
 - PC Processing Requirements: Xeon 5500 Series (i7-based) quad-core processor or equivalent
 - RAM: 4 GB minimum
 - HDD: 250 GB
-

Ordering information

Options

| | |
|-----------------|--|
| VQS1000 | Video Quality Software application for single-ended (no reference) QoE analysis of video and audio content |
| Opt. AUD | Audio analysis option for VQS series software |
| Opt. LUD | Installation on a pre-existing MTS/PQA Series dongle |
| Opt. USB | USB security dongle supplied with stand-alone software package |

Complementary products

| | |
|-----------------------|---|
| IPM400A | IP Video Monitoring Probe for QoS of up to 500 MPTS or SPTS IP video flows. For full details see separate datasheet |
| MTM400A | Digital TV Monitor. For full product details, refer to product datasheet |
| RFM300 | ATSC Digital TV Monitor. For full product details, refer to product datasheet |
| QAM400A | QAM Digital TV Monitor. For full product details, refer to product datasheet |
| MTS4000 Series | MPEG test systems. Also available in stand-alone software versions. For full product details, refer to product datasheets |



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com.

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