

High Definition Tektronix PQA500 Picture Quality Analyzer Predicts Viewer Response

Instrument Incorporates New, Comprehensive Human Vision Model and Eight New Tektronix Patents

PRNewswire-FirstCall
BEAVERTON, Ore.

Tektronix, Inc. , a leading, worldwide provider of test, measurement and monitoring instrumentation announced the PQA500 Picture Quality Analyzer, a new generation picture quality analysis (PQA) tool. Incorporating eight new Tektronix patents and embodying the most comprehensive Human Vision Model, the PQA500 provides the most complete suite of measurement and diagnostic tools for picture quality analysis including full support of high definition (HD) formats. Video developers and broadcasters can quantify subjective video responses with the PQA500 enabling them to tune their video offerings for differences in format and delivery mechanisms. This enables them to consistently produce an optimal customer viewing experience.

Consumer expectations for high quality video experiences continue to increase in the new digital world whether content is viewed on television, over the Internet or on the latest mobile devices. The digital video ecosystem includes companies and individuals that produce and distribute content. The PQA500 supports the ecosystem by addressing the needs of CODEC designers, research engineers, broadcasters and mobile network operators. The PQA500 enables a comparative quality assessment to ensure the highest quality levels are achieved at all points along the video path.

"The PQA500 is unique in its ability to compare differing file/video formats, frame rates, bandwidth, viewing conditions and display models," said Todd Biddle, Vice President, Video Products, Tektronix. "The PQA500 incorporates the most comprehensive vision model yet developed and the most complete set of picture quality measurement tools available. The instrument enables CODEC developers and broadcasters to optimize resources while also meeting customer expectations for consistent picture quality regardless of the viewing medium."

PQA500 Provides Industry-Best HD/SD Picture Quality Analysis

Picture quality testing is often performed by having a number of people view a piece of video under controlled conditions and rate it. Another evaluation method is review by a video expert. These experts are known as "golden eyes." The PQA500 Picture Quality Analyzer provides an automated alternative through practical, efficient, and reliable picture quality assessment among HD/SD and low resolution clips like CIF, and QVGA for CODEC design and conformance test applications. The PQA500 facilitates this through adaptation to any resolution and frame rate and automatic spatial and temporal alignment of reference and test video clips, even between different video standards. As a result, the perceptual difference may be measured between lower resolution sequences and an original higher resolution SD/HD sequence, and the reverse.

The instrument includes integrated signal acquisition, manual and automated measurements through XML scripting, no preset limit to clip lengths or file sizes, and no need for a trigger pattern in the clip to align test to reference video. A graphical UI provides preconfigured application specific measurements, and multiple viewing and results options.

Most Comprehensive Human Vision Model Can Predict Perceived Picture Quality

Ensuring accurate video quality rating predictions requires a vision model that can adapt as human vision adapts to different displays, viewing conditions, video context and formats, along with a method for adapting quality scales as humans do in subjective quality rating, training and conditioning. Existing vision models exist for each different class of video -- e.g., SD, HD, CIF or QCIF. However, each has shortcomings and comparisons between models are problematic.

The new model developed by Tektronix is both inclusive of these different classes and more comprehensive. Using this Human Vision Model, the PAQ500 Picture Quality Analyzer uses quantitative techniques to predict subjective video quality ratings, not only between video of the same video standard, but also between 1080i and 720p HD, HD and SD, 525 line and 625 line SD, 30 frames per second and 25 frames per second, SD and CIF, HD and CIF, etc. This capability is a first for the industry, enabling direct support of video re-purposing involving conversion from one video standard to another.

There are 19 calibration parameters incorporated into the PQA500 that serve to fully implement the Human Vision Model. These parameters are formulated based on the data available from thousands of published results of experiments in vision science. The parameters support evaluation and comparison among differing file and video formats, frame rates, viewing conditions, and display models.

The intelligence of the model has been built into the PQA500 through an "adaptive integrator," also known as an adaptive recursive (infinite-impulse response, IIR) low-pass filter. Because human vision adapts to changing conditions (change in light, display, distance, temporal aspects etc.), changes in sensitivity to video impairments can change subjective rating response dramatically. The adaptive integrator is used to mimic human vision adaptation to accurately predict video quality across many applications.

Pricing and Availability

Tektronix has been providing picture quality analysis products since 1997 with the PQA200 and later the PQA300, the de-facto standard and market leader for standard definition (SD) PQ measurements. The new PQA500 is available immediately for order. U.S. MSRP for the PQA500 starts at \$60,000.

About Tektronix' IPTV Solution Portfolio

Tektronix' deep knowledge and expertise in both broadcast video content monitoring and IP monitoring -- two critical building blocks for high quality IPTV -- make the company uniquely positioned to test the convergence of voice, video and data. Tektronix' integrated, seamless portfolio of best-in-class monitoring and analysis solutions help bring triple play and IPTV services to market. This portfolio includes the Spectra2|VQM v2.0, part of a full suite of Spectra2 VoIP and PSTN tools designed to assist in the delivery of video and voice media over modern networks; the MTM400 MPEG Transport Stream Monitor, a scalable solution to detect signal degradation caused during transmission and distribution; the MTS400 Series, the world's first Compressed Digital Video Debugger/Analyzer that can be applied to see and solve the most subtle, complex and intermittent DTV problems in minimum time; and Cerify, the world's first automated verification system for file-based digital video content.

About Tektronix

Tektronix is a leading supplier of test, measurement, and monitoring products, solutions and services for the communications, computer, and semiconductor industries -- as well as military/aerospace, consumer electronics, education and a broad range of other industries worldwide. With 60 years of experience, Tektronix enables its customers to design, build, deploy, and manage next-generation global communications networks, advanced and pervasive technologies. Headquartered in Beaverton, Oregon, Tektronix has operations in 19 countries worldwide. Tektronix' Web address is <http://www.tektronix.com/>.

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