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Manufacturers of Color IQ™ Quantum-Dot Optics

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About QD Vision

QD Vision is a leading supplier of quantum dot optical components for LCD displays. Their unique Color IQ™ solution expands the color gamut of LCD color TVs, monitors, and mobile devices by emitting very pure, very saturated, narrow bandwidth red, green and blue light that is optimized for LCD screens. The Color IQ technology renders improved picture quality and brighter colors overall and brings these displays closer to achieving the Rec.2020 Ultra HDTV color space.

QD Vision works directly with display manufacturers to provide the technology for the manufacturers to incorporate a Color IQ solution into their existing designs.

The Problem

QD Vision field engineers are tasked to work with display manufacturers to retrofit current LCD models with QD Vision's Color IQ optical components. The field engineer then demonstrates the refitted prototype to the manufacturer, who may choose to partner with QD Vision, depending upon their perceived value of QD Vision's quantum dot technology.

It is important that QD Vision's refitted prototype display meets the manufacturer's specific white point and color space targets along with rendering outstanding color images compared to the original model. The QD Vision field engineers must be able to adequately demonstrate and document a prototype's superior color performance characteristics and added capabilities.

However, to measure and adjust the display's color performance, QD Vision's field engineers had to resort to using the display manufacturer's calibration tools, when available. These tools proved to be of inconsistent and inadequate utility and reliability. QD Vision's field engineers and lab technicians also lacked the tools to document the actual difference made by refitted Color IQ components, though it was obvious to the human eye that an installed Color IQ solution had

definitely improved the overall color performance.

As QD Vision's quantum dot technology continued to grow in standing and popularity among display manufacturers, QD Vision became increasingly aware that they needed dedicated tools to be able to accurately calibrate displays with Color IQ optics and impartially compare their Color IQ solution to other displays.

The Solution

QD Vision chose the CalMAN display calibration solution primarily for its display measurement and calibration versatility. CalMAN immediately exceeded QD Vision's requirement to interface with various meters, pattern generators, and displays out of the box. The dozens of custom measurement options and the multiple graphs, charts, and data fields provided by CalMAN enable QD Vision to fully detail all aspects of a display's color performance.

Since adopting SpectraCal's solution, CalMAN has provided a number of benefits for QD Vision's prototyping and technology demonstrations.

Evaluation

CalMAN provides QD Vision's lab technicians with the objective measurement and comparison data they need to be able to accurately evaluate their own and competitive display technology. This valuable data can be leveraged at trade shows and in publications as proof of Color IQ's impressive capabilities. With CalMAN integrated into lab evaluations, QD Vision can now back their claim, with CalMAN empirical data, that their quantum dot technology expands the native color space of existing LCD displays to 95% of the Rec.2020 color space.

Prototyping

QD Vision uses CalMAN to implement new standard operating and troubleshooting procedures for their field engineers while they are retrofitting manufacturers' LCD displays with quantum dot optics. They have implemented these standardized procedures as custom CalMAN workflows.

The QD Vision field engineers use their custom CalMAN workflows to calibrate prototype displays to their customers' specific white point and color space requirements. Field

Simulated example of standard versus quantum-dot optics.

engineers are also now able to generate a report of each display's unique color performance to communicate performance data back to QD Vision lab technicians.

Overall, equipping their field engineers with CalMAN software has shortened QD Vision's prototyping phase of product development, allowing them to better evaluate prototype display systems and make better design, engineering, and business decisions.

Demonstrations

QD Vision now deploys CalMAN calibration software to present more effective demonstrations of their Color IQ technology, directly to manufacturers and at trade shows. CalMAN enables highly effective before-and-after demonstrations of their Color IQ technology with its ability to quickly switch between any number of color space standards.

CalMAN ensures the accurate rendering of all image colors when demonstrating the Color IQ advantages to potential customers. This is essential to realizing the benefits of wide color gamut displays, which are often compromised by wrong hues and over saturated colors when left uncalibrated.

Demonstrations of QD Vision's Color IQ technology are now enhanced by the confidence of accurate color presentation.

About SpectraCal

SpectraCal offers a number of calibration software and hardware solutions for several industries, including but not limited to display manufacturing, professional installation, medical imaging and video production.

Their flagship software product, CalMAN, has been adopted by consumers and professionals worldwide as the go-to solution for color accuracy and display analysis. Since CalMAN was launched in 2007, it has grown into five different software families, each unique to a particular set of industry needs.

CalMAN, used by QD Vision, provides dozens of color space standards, gamma targets and measurement options, as well as custom workflows.

To learn more about SpectraCal and their CalMAN software products, visit www.SpectraCal.com.