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Case Study

Quality that Reflects Experience: DXOMARK Benchmarks Displays Using Real-World Conditions and Scientific Data from ProMetric® Imaging Colorimeters



About DXOMARK

DXOMARK provides independent device quality benchmarks based on scientific assessment. Headquartered in Paris, France, the company operates state-of-the-art labs with documented test protocols to evaluate the objective and perceptual performance of DSLR and DSC cameras and their lenses, smartphone cameras, chipsets & ISPs, battery life, and displays under real-world conditions; DXOMARK also evaluates audio quality of speakers and smartphones. The results of hundreds of tests are aggregated as numerical values, which are sub-scores for key quality attributes and provide an overall quality index, the device's DXOMARK score. Referenced widely by the global consumer electronics community, a DXOMARK score is used by manufacturers and news media to communicate a device's quality ranking.

Since launching its website in 2008, DXOMARK has rapidly established a reputation among consumers and manufacturers as a trusted source of reviews based on scientific data. The company began by testing DSLRs and camera equipment, later adding smartphone camera systems. With touchscreen displays the pivotal interface for smartphone operation, DXOMARK extended its testing to include display performance. Opened in 2020, DXOMARK's display test lab reflects the company's dedication to device benchmarking using scientific testing, applying the latest display test equipment and methods to evaluate quality according to the user experience.

Display Quality as a Factor of User Experience
Device manufacturers and display panel makers commonly perform visual inspection and display calibration as part of their quality control operations. Typically, displays are tested in dark labs, with a measurement system aligned at a specific distance and angle relative to the display. These

OVERVIEW

Company: DXOMARK is a French engineering services company whose testing, software, and benchmarking services help smartphone, tablet, and digital camera makers create the best possible products. Its website — [dxomark.com](#) — is the world's largest online source of digital image, audio, and display quality ratings, trusted by consumers and industry leaders to produce objective, accurate analyses of the performance of new products.

Challenge: Evaluate the visual quality and performance of display devices according to how users experience them in the real world.

Opportunity: On a short timeline, the company needed to develop a smartphone display test bench to identify, integrate, and deploy best-in-class display measurement tools for comprehensive and objective cross-performance evaluation of attributes such as luminance, color, contrast, uniformity, flicker, glass, and touchscreen response.

Solution Components: Radiant Vision Systems' ProMetric® Imaging Colorimeter, FPD ColorScope Lens, and TrueEye™ Software; Konica Minolta's CG 2080 Spectrocolorimeter, CR 200 Spectrophotometer, and CA-418 Display Color Analyzer.

Solution Benefits: Radiant's display test systems offer multiple advantages to meet DXOMARK's needs:

- Traditional films that measure light and color according to the human eye's response
- High-resolution imaging that captures data for each pixel in today's high-resolution device screens
- Electronic focus and aperture control to automate lens settings according to measurement processes
- Flexibility to use a single system for multiple measurement needs

Results: The DXOMARK Display Bench and test lab was launched on schedule, achieving measurement with optimal efficiency thanks to the flexibility of the Radiant and Konica Minolta systems. Using these tools and user-focused test protocols, DXOMARK captures scientific data and delivers objective display quality benchmarks referenced by manufacturers and consumers alike.

DXOMARK Rates Display Performance in Real-World Conditions Using Scientific Measurement

Renowned among display makers, consumers, and media for its device benchmarking protocols and quality index—the DXOMARK score—DXOMARK has revolutionized test methods to evaluate and rank consumer electronic devices objectively and scientifically. In this case study, learn how DXOMARK incorporates a variety of scientific imaging metrology tools from Radiant Vision Systems into its Display Bench to evaluate smartphone displays as they are actually used under real-world conditions.

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