RADIANT
VISION SYSTEMS

TT-AutomotiveDisplay™

Automotive Display Test Module for TrueTest™ Software

Applications

- Validate the optical and environmental performance of displays used in automotive integrations
- Test touchscreens, center stack displays, instrument panel displays, navigational & infotainment displays, and more
- Use with a Radiant ProMetric® Imaging Colorimeter or Photometer
- Measure absolute luminance and chromaticity of displays
- Analyze Black Mura Gradient and other mura types

Benefits

- Pre-defined tests for efficient automotive display measurement
- Automatic identification of measurement areas for rectangular and freeform displays to evaluate any display shape or size
- Built-in suite of analyses for testing to German Flat Panel Display Forum (DFF) standards for Black Mura Gradient; optional tests for additional mura analysis
- Extensive moiré removal tools
- Fully automated operation using software API to control test images on the display and synchronize camera and test sequence
- User-controlled test sequences and pass/fail criteria

Software module with tests for evaluating the quality of displays used in automotive applications

Radiant Vision Systems TrueTest™ Software provides a comprehensive set of tests for image analysis within a flexible framework that enables evaluation using a single test, or multiple tests in sequence. Test sequencing and pass/fail reporting functionality make TrueTest the ideal software package for production environments. TrueTest Software can be combined with a Radiant ProMetric® Imaging Colorimeter or Photometer to create a complete testing system for light and color measurement, so multiple options are available to achieve the pixel resolution, dynamic range, and cost required for any application.

The TT-AutomotiveDisplay™ module for TrueTest Software provides a test suite to efficiently perform light, color, and mura measurements used to evaluate the quality of displays used in automotive applications.

The TT-AutomotiveDisplay software module includes:

- **Validation for In-Car Displays**
  Evaluate luminance and contrast in any environmental conditions.
- **Testing Black Mura Gradient**
  Testing to DFF requirements with built-in pass/fail parameters for luminance, contrast, and gradient relative to white and black.
- **Image Sticking Analysis**
  Evaluate the persistence of residual images after a burn-in period.

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TT-AutomotiveDisplay™ System Requirements

- ProMetric® Imaging Colorimeter or Photometer, or ProMetric I-SC Solution
- Windows® 10, 64 bit
- 16-32 GB RAM
- Additional system requirements vary by camera. See hardware specification sheet for more

Test Library

TT-AutomotiveDisplay includes tests for display quality and defect detection, including:

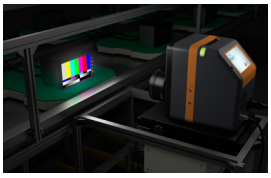
- ANSI Brightness
- ANSI Color Uniformity
- AutoPOI
- Black Mura Defocus
- Black Mura FreeForm
- Black Mura Gradient
- Black Mura Gradient PWM
- Checkerboard Contrast
- Color Edge Mura
- Color Mura
- Compare POI
- DFF Image Sticking Analysis
- Image Export
- Line Defects
- MTF Line Pair
- Particle Defects
- Particle Defects Cluster
- Pixel Defects
- Points of Interest
- Sequential Contrast
- Sparkle
- Uniformity

Optional Test Library*

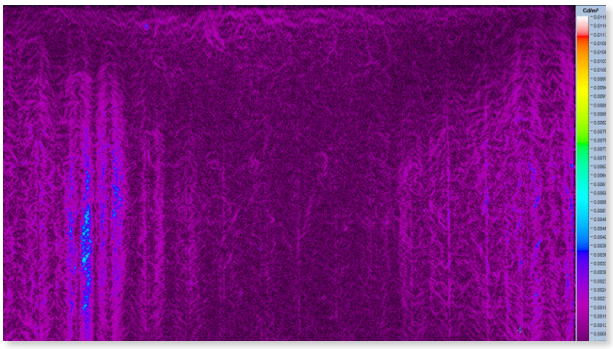
*Available with TrueMURA™ License Code:

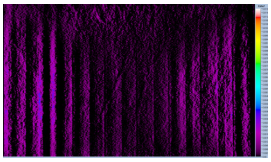
- Blob Analysis
- Edge Mura
- LED Mura

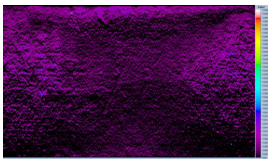
Example analyses in TT-AutomotiveDisplay:



Validation testing of in-car displays: Evaluate luminance (minimum and typical), straight-on or off-angle, in DAY or NIGHT mode. Document cold startups and contrast ratios (minimum and typical) over a wide FOV. Measure color coordinates and tolerances for White, Red, Green and Blue test inputs.







Testing Black Mura Gradient to German Flat Panel Display Forum (DFF) Standards: Identify regions of pixels in a display that exceed luminance tolerances when compared to the neighboring pixels. If the maximum luminance difference over the ROI (the gradient) divided by the average luminance for the white/black measurement is larger than the specified maximum value, then the value is reported as a failure in the software. The user may write the values to CSV files for further analysis.

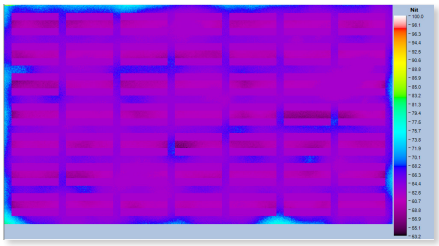
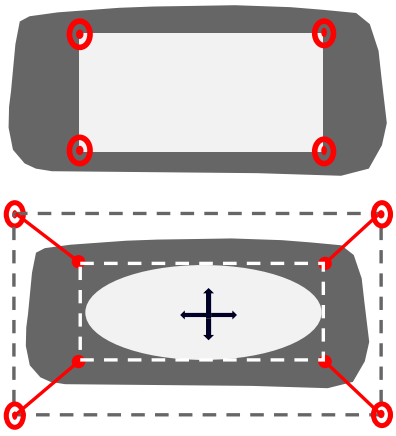


Image Sticking: Evaluate the persistence of a residual image following a burn-in period.



Ease of Setup: Advanced TrueTest functionality auto-rotates and crops the measurement region exactly to the active area of rectangular and freeform displays (respectively), zeroing out the background.

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