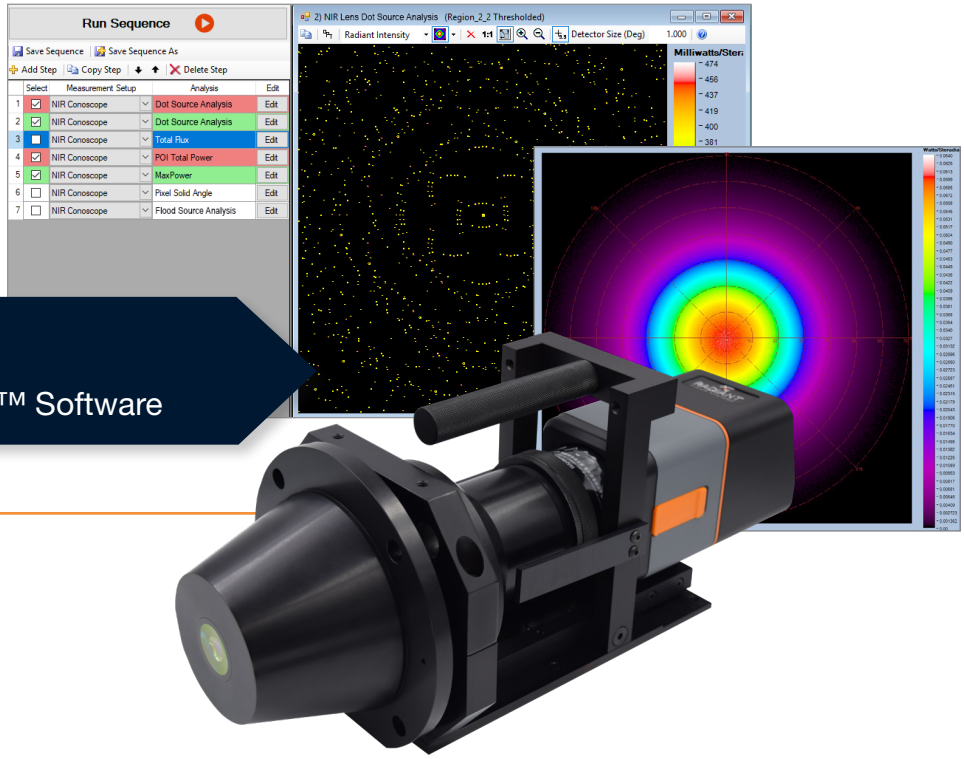
RADIANT
VISION SYSTEMS



TT-NIRI™

Near-Infrared Test Module for TrueTest™ Software

Applications

- Angular measurement for near-infrared (NIR) emitting devices used in facial recognition and other 3D sensing applications
- Use with the Radiant Near-Infrared (NIR) Intensity Lens integrated camera/lens solution
- Evaluation of 850 or 940 nm* light sources, measuring radiant intensity across a ±70° distribution at once

Benefits

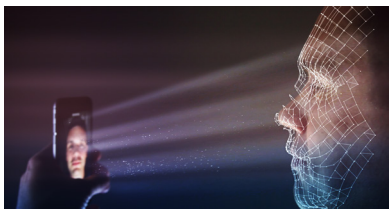
- Quickly apply pre-defined tests for NIR emission measurement
- Characterize emitters in the lab for R&D; use data as a benchmark during production for real-time quality control
- Capture and measure all angular data points simultaneously for optimal production-line efficiency
- Software test sequencing and hardware integration allow automated testing for production and end-of-line
- Easily transition data files within the Radiant family of software

* For applications at wavelengths outside of 850 or 940 nm, please speak with a Radiant sales representative.

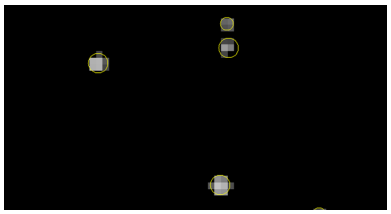
Software module with tests for evaluating near-IR emission patterns and angular distributions

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 Radiometer to create a complete testing system for near-infrared (NIR) intensity measurement.

The TT-NIRI™ module for TrueTest Software provides a test suite to efficiently perform high-resolution angular measurement of NIR light distributions, as well as dots in structured light patterns produced by diffractive optical elements (DOE). Extensive data analysis and display functions are included: isometric plots, cross-sectional graphs, radar plots, and bitmaps.



Evaluate NIR emitters used in facial recognition and other 3D sensing applications such as gesture recognition and eye tracking.



Points in diffracted laser light patterns are automatically registered and analyzed in TT-NIRI. Identifies characteristics such as the angles of location, intensity, uniformity, and flux.

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TT-NIRI™ System Requirements

- NIR Intensity Lens solution
- Windows® 10, 64 bit
- 16-32 GB RAM
- Additional system requirements vary by camera. See hardware specification sheet for more information.

Test Library

TT-NIRI includes tests for near-infrared (NIR) laser and LED measurement:

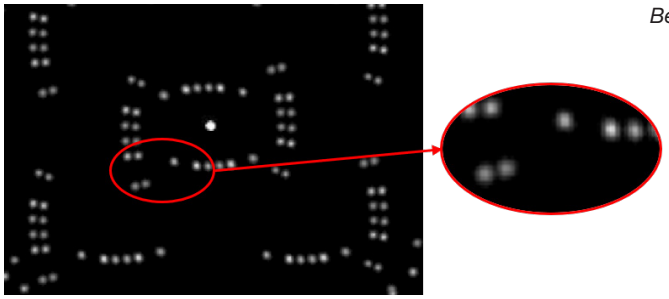
- Total Flux (mW or W)
- POI Total Power
- Max Power
- Pixel Solid Angle
- Inclination Solid Angle
- Dot Source Analysis
- Flood Source Analysis
- Points of Interest
- Image Export

Captures highly accurate emission measurements reported in radiant intensity (as a function of angle). Dot Source Analysis automatically outputs CSV files containing data for the entire sample, data for each region of interest, and data for each dot.

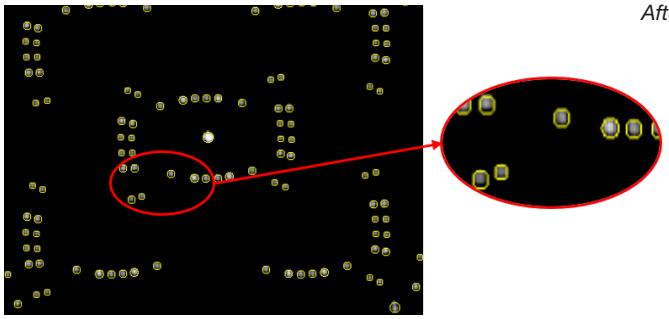
Examples of TT-NIRI analyses:

Use “Dot Source Analysis” test to output uniformity, max intensity, and flux statistics on a dot patterns produced by NIR laser light diffracted through a diffractive optical element (DOE). This test can analyze individual dots or regions of dots to ensure the patterns are projected in the correct angle (inclination, azimuth) and with the correct intensity (W/sr).

Before analysis

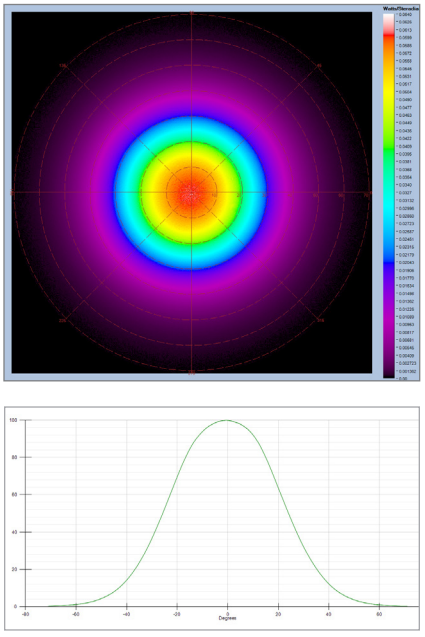


After analysis

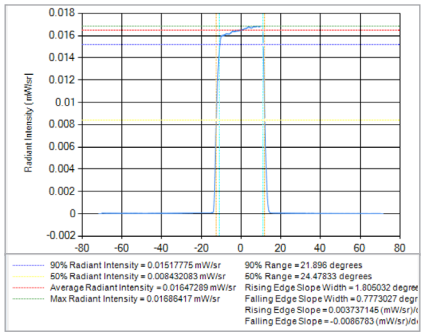


Example data output

Result	Value
Maximum Peak Location (x)	1502 pixel columns
Maximum Peak Location (y)	1628 pixel rows
Maximum Peak Inclination, Azimuth	0.3449 degrees, 5.1281 degrees
Maximum Peak Average	492.1149 mW/sr
Maximum Peak Solid Angle	0.024 milli steradians
Number pixels Maximum Peak point	18 pixels
Spot power uniformity	31.57%
Total Flux	50.3492 mW
DOE Flux (Subtract Background Peak)	15.4358 mW



Polar and cross-section radar plot showing radiant intensity (as a function of angle) of a NIR LED source distribution.



Some NIR systems use flood illumination to measure Time of Flight (ToF) for proximity sensing. Flood Source Analysis measures distributions of diffuse “flood” NIR light sources for uniformity across angular emissions (intensity at each degree), center values, angular fall-off, and hot-spots.

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