Imatest LED Light Panel

A versatile, low-profile, uniform light source

Why Choose Imatest LED Light Panel?

The Imatest LED Light Panel provides a versatile, low-profile and lightweight light source with 90% uniformity, dimmability, wireless controls, and easy integration with our hardware and charts. Choose from a variety of color temperatures as well as near-infrared channels with illuminance levels ranging from 100 to 1,000 lux. The LED Light Panel is ideal for testing many image quality factors with a range of transmissive test charts.

Light Panel with eSFR ISO Chart

The light panels are offered in seven standard sizes with:

✔ Chart alignment rails to align charts for the most reliable results.

✔ A single channel with various color temperature and NIR options (included in the standard size).

✔ Illuminance levels ranging from 100 ~ 1,000 lux visible, 2 ~ 20 W/m^2 NIR.

✔ 90% or 95% uniformity.

Wireless Control Box

Low-Profile

Size	Diffuser Panel Size/ External Dimensions	Intensity (min to max)*	Light Temperature Options**	Uniformity	Channels
A	229mm x 152mm (9" x 6") 299mm x 222mm x 40 mm (11.8" x 8.7" x 1.6")	100 to 1,000 lux NIR: 2 ~ 20 W/m²	3100K 4100K 5100K 6500K NIR 850nm NIR 940nm	90% (95% available upon request)	Single (multichannel available upon request)
B	260mm x 220mm (10.24" x 8.66") 384mm x 334mm x 60mm (15.1" x 13.1" x 2.4")				
C	432mm x 305mm (17" x 12") 512mm x 385mm x 60mm (20.2" x 15.2" x 2.4")				
D	610mm x 432mm (24" x 17") 690mm x 512mm x 60mm (27.2" x 20.2" x 2.4")				
E	907mm x 540mm (35.7" x 21.3") 987mm x 620mm x 70mm (38.9" x 24.4" x 2.8")	30 to 1,000 lux NIR: 2 ~ 20 W/m²		90%	
F	907mm x 680mm (35.7" x 26.8") 987mm x 760mm x 70mm (38.9" x 29.9" x 2.8")				
G	1225mm x 680mm (48.2" x 26.8") 1305mm x 760mm x 70mm (51.4" x 29.9" x 2.8")				

*With the multichannel version, you can emit a single channel or combination of channels.
**In the multichannel mixed mode, the intensity range is reduced to 200 to 1,000 lux.

Options Available Upon Request

✓ 30 to 1,000 lux.

✓ Multichannel with mixed mode.

✓ 95% uniformity (available on sizes, A, B, and C only).

Power

✓ 20W

✓ 110V

✓ 220V

Controls

✓ Manual

✓ USB

✓ WiFi

Control Box & Sizes A-D

Imatest LED Lightbox
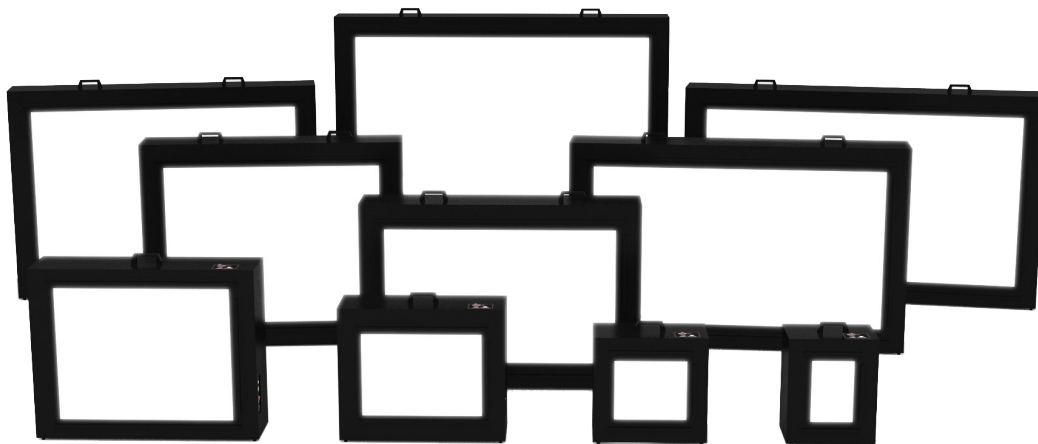*Designed for dynamic range and ultrahigh resolution testing*

Why Choose the Imatest LED Lightbox?

The Imatest LED Lightbox is a highly uniform light source for transmissive charts that are designed for dynamic range and ultrahigh resolution testing. With the Lightbox, you can align charts precisely with mounting rails, integrate with test fixtures using universal mounting points, and control light with wireless controls. Choose from a continuous range of color temperatures, including near-infrared channels and intensity levels from 30 to 10,000 lux.

Lightboxes are available in nine standard sizes with:

✓ A single channel or two channels with a mixed mode for a continuous color spectrum.

✓ Standard intensity levels between 30 and 10,000 lux.

✓ 90% uniformity; 95% uniformity is optional for size B and C.

✓ Size B offered in low lux (1-10,000) as well as max lux options of 5,000, 10,000, 20,000, 30,000, 50,000, and 100,000.

Size	Diffuser Panel Size/ External Dimensions	Intensity (min to max)*	Light Temperature Options**	Uniformity	Channel
B	260mm x 220mm (10.24″ x 8.66″) 400mm x 380mm x 150mm (15.7″ x 15″ x 7.9″)	1 to 10,000 lux 30 to 5,000 lux 30 to 10,000 lux 30 to 20,000 lux 30 to 30,000 lux 30 to 50,000 lux 30 to 100,000 lux NIR: 2 ~ 20 W/m^2		90% or 95%	
C	432mm x 305mm (17″ x 12″) 600mm x 490mm x 150mm (23.6″ x 19.3″ x 7.9″)	30 to 5,000 lux 30 to 10,000 lux NIR: 2 ~ 20 W/m^2	3100K 4100K 5100K 6500K NIR 850nm NIR 940nm		Single or multichannel with mixed mode
D	610mm x 432mm (24″ x 17″) 810mm x 630mm x 150mm (31.6″ x 24.8″ x 7.9″)			90%	
E	907mm x 540mm (35.7″ x 21.3″) 1107mm x 740mm x 200mm (43.6″ x 29.1″ x 7.9″)				
F	907mm x 680mm (35.7″ x 26.8″) 1107mm x 880mm x 200mm (43.6″ x 34.6″ x 7.9″)				
G	1225mm x 680mm (48″ x 26.8″) 1425mm x 880mm x 200mm (56.1″ x 34.6″ x 7.9″)				
H	1225mm x 800mm (48″ x 31.5″) 1425mm x 996mm x 200mm (56.1″ x 39.2″ x 7.9″)				
I	1440mm x 800mm (56.7″ x 31.5″) 1640mm x 1000mm x 250mm (64.6″ x 39.4″ x 9.8″)				
J	1440mm x 1100mm (56.7″ x 43.3″) 1640mm x 1300mm x 250mm (64.6″ x 51.2″ x 9.8″)				

*In the multichannel mixed mode, intensity range is reduced to 200 to 1000 lux.
**With the multichannel version, you can emit a single channel or combination of channels together.

Custom sizes are available. Please contact **sales@imatest.com**.

Power

✓ 20W

✓ 110V

✓ 220V

## Controls

✓ Manual

✓ USB

✓ WiFi

NIR-capable

Imatest Modular Test Stand

Easy-to-use platform for consistent imaging tests

The Modular Test Stand (MTS) facilitates precise setup and repeatable camera positioning for consistent imaging tests. The MTS enables you to produce superior cameras while significantly reducing time spent in the lab. The MTS is configurable to accommodate your camera system. Optional add-on modules include reflective lighting and wide field-of-view options.

Included with the Fixture:

✓ Custom rail system for easy positioning.

✓ Ruler and laser rangefinder for precise test distance measurements.

✓ Reliable camera mount (tripod head or gimbal head).

✓ Adjustable chart holder that conforms to a variety of test targets.

✓ Controlled alignment that enables tilt and rotation measurements.
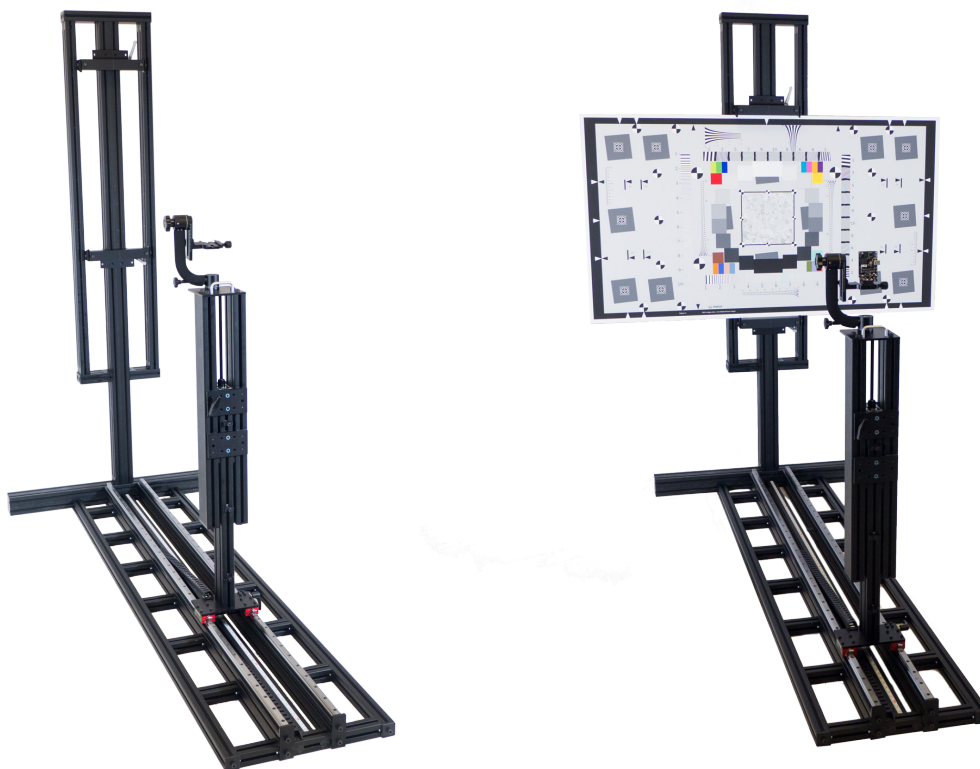
Specifications	Details
Weight - default option (2m Rail)	~82kg (180lbs)
Overall dimensions	Default option (2m Rail): 1000mm x 2050mm x 2020mm (39.37" x 80.71" x 79.53")
Camera Tilt (R_z)	Geared Tripod Head: -90° / +30° Gimbal Head: 0°
Camera Pitch (R_x)	Geared Tripod Head:-10° / +90° Gimbal Head: 360°
Camera Rotation (R_y)	Tripod Head: 360° Gimbal Head: 300°
Overall test fixture weight	Tripod Head: 360° Gimbal Head: 300°
X-axis Translation	120mm
Reflective chart size range	Min: 21.58cm x 27.94cm (8.50" x 11"), Max: 110cm x 144cm (3.94" x 56.69")
Transmissive chart size range	Imatest LED Light Panel C, D, E, F, and G
Rail length options	1m, 2m, 3.5m (39.37", 78.74", 137.79"); custom lengths available
Material	6105-T5 Aluminum - Black Anodized

Custom configurations available. Contact **testing@imatest.com**.

Light Panel Dimensions (Active Area):

Light Panel	Diffuser Panel Size	Illumination
C	432mm x 305mm (17.01" x 12.01")	**Visible** 100 - 1000 lux 3100K, 4100K, 5100K, 6500K **NIR** 2 ~ 20 W/m^2 850nm or 940nm
D	610mm x 432mm (24.02" x 17.01")	
E	907mm x 540mm (35.71" x 21.26")	
F	907mm x 680mm (35.71" x 25.59")	
G	1225mm x 680mm (48.23" x 25.59")	

Imatest Collimator Fixture

Relay lens system for simulating long test distances

Why the Imatest Collimator Fixture?

Cameras with long-focus distances can be difficult to test in a compact space. Testing your imaging system at distances up to infinity can be achieved using relay optics. The Collimator Fixture is configurable to your working distances and fields of view with an adjustable lens-to-chart distance, interchangeable collimating lenses, and charts.

Size: 951mm (37.44") length x 1300mm (51.18") width x 797mm (31.38") height (depending on required light panel size)

Included with the Fixture

✓ Joystick and computer-control interface for automatic positioning using four motorized stages.

✓ Storage and recall of device positions.

Requirements

✓ Entrance pupil diameter of device under test must be less than or equal to the exit pupil size of the collimating lens.

✓ Camera needs to be aligned precisely with the optical axis of the collimator.

Available Collimator Lenses

Lens	Wavelength	FOV	Exit Pupil Size	Virtual Object Distance
CL736i	Visible	70°	15.0mm	400mm - Infinity
CL921e	Visible	90°	4.5mm	400mm - Infinity
CL1021i	Visible	100°	4.5mm	400mm - Infinity
CL1223i	Visible	120°	4.5mm	350mm - Infinity
CL825I	IR (850nm, 940nm)	80°	4.0mm	400mm - Infinity
CL921IR	IR (850nm, 940nm)	90°	4.5mm	400mm - Infinity

70° Medium Field of View
Collimator Lens

90° Field of View
Collimator Lens for Mobile

120° Wide Field of View
Collimator Lens

| Light Panel	Size	Illumination
D	610mm x 432mm (24.02" x 17.01")	**Visible** 100 - 1000 lux 3100K, 4100K, 5100K, 6500K
E	907mm x 540mm (35.71" x 21.26")	
F	907mm x 680mm (35.71" x 26.77")	**NIR** $2 \sim 20$ W/m^2 850nm or 940nm
G	1225mm x 680mm (48.23" x 26.77")	

Geometric Calibration Solution

Accurately calibrate single and multicamera devices

Why is Geometric Calibration Important?

The Imatest-Furonteer Geometric Calibration Solution enables companies to better understand the images captured from their devices. It calibrates as-built camera systems by accurately mapping the pixel position to real-world positions for monocam, stereo pair, and multicamera devices. We combine the analysis software and calibration hardware required for rapid testing in a production line. Imatest and Furonteer engineers optimize each test setup for your specific camera(s), and actuators enable automated camera manipulation to calibrate camera systems. Our engineers have successfully produced a high-throughput solution for devices with fields of view between 28° and 155°.

Key Features

✓ Calculate intrinsics, extrinsics, and distortion.

✓ Test single and multicamera systems.

✓ Free-space test within minimum focus distance.

✓ Conduct tests in 30 to 90 seconds.

✓ Calibrate a range of fields of view.

✓ Automated testing.

✓ Integrated software analysis.
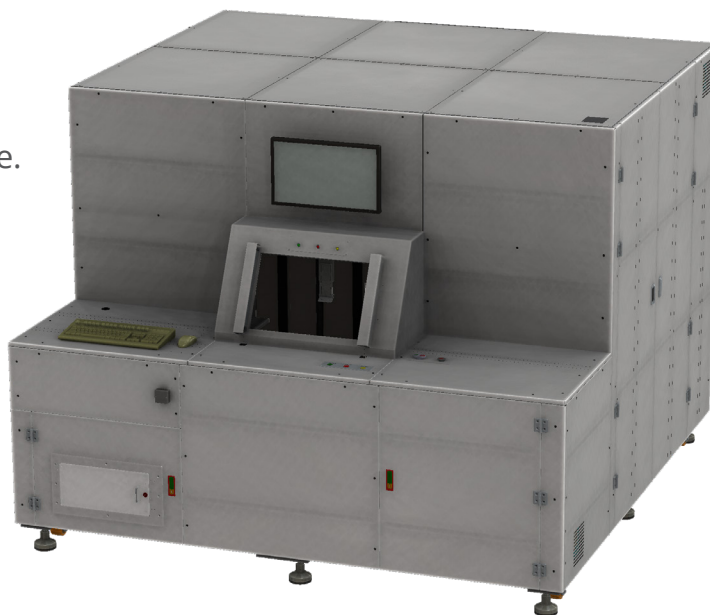
Training
Increase your knowledge of image quality testing

How Our Training Courses Work

We offer two-day training courses throughout the year in the United States, Asia, and Europe. Our courses cover the factors contributing to image quality, how to select appropriate test charts, and how to use Imatest. Throughout the training, participants can ask the instructor questions to solidify their understanding of image quality and usage of the software.

You will learn how to:

✔ Assess overall image quality.

✔ Measure key image quality factors using Imatest.

✔ Understand and interpret Imatest output.

✔ Avoid common mistakes in applying Imatest.

✔ Set up and tailor your test lab for accurate measurements.

✔ Select the appropriate test charts.

✔ Configure options to achieve particular testing objectives.

✔ Balance the tradeoff between yield and end-user satisfaction.

✔ Automate tests for manufacturing quality control.

Consulting
Get customized support for all of your imaging needs

How Can Our Experts Help You?

Imatest offers innovative solutions to address key issues in the design, development, and testing of imaging applications. We can adapt our algorithms to the characterization of unconventional imaging systems and optimize the efficiency of your testing procedures by maximizing the number of quality factors obtained from each test image. Imatest can also assist you in identifying causes of failures in manufacturing processes and give insight on how to maintain customer satisfaction while controlling cost and maximizing production yield.

> *Imatest generated innovative infrared test charts designed to work in harsh physical environments for the US military.*

> *For a major medical device company, Imatest developed software to remove honeycomb patterns introduced by fiberscopes and developed blemish detection algorithms and sofware.*

Experts Available in the Following:

- ✔ Imaging and color science.
- ✔ Camera image quality/system characterization.
- ✔ Digital signal processing/image enhancement pipeline.
- ✔ Computer science.

- ✔ Electrical engineering.
- ✔ Physics.
- ✔ Biomedical photography.
- ✔ Camera calibration.
- ✔ Remote sensing.

> *Integrated direct acquisition from development kits included in Imatest software for several image sensor manufacturers.*

> *Developed custom test charts and procedures to assess the image quality of a revolutionary new imaging system for a major medical device company.*

> *Constructed test methods and software to support quality control of night vision scopes for a supplier to the US military.*

imatest ®

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