



Premium  
Application  
Support  
Services

Light is service  
Get your PASS to the future

Light is **OSRAM**

**OSRAM**  
Opto Semiconductors



Qualification for PASS services will be evaluated based on the mutual business potential and opportunity. OSRAM Opto Semiconductors has close relationships with all its customers, from all markets and all over the world. With a deep understanding for your individual needs and expectations, outstanding competence from basic technologies to special customer applications and a very profound application support, we both contribute to the timely development of new solutions and long-term success. Your specific qualification for PASS services will be evaluated based on the mutual business potential and opportunity.

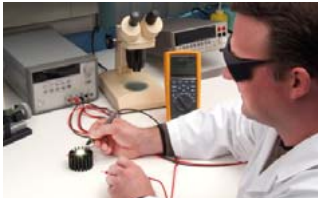
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# Why do we offer PASS?

We want you to succeed. We've created PASS to become your engineering solutions service. The program is flexible, collaborative and typically complimentary. So why not try it? The future can be yours. You just need a PASS.

**Prototype**



**System Metrology**



**LED Data**



**Simulation**

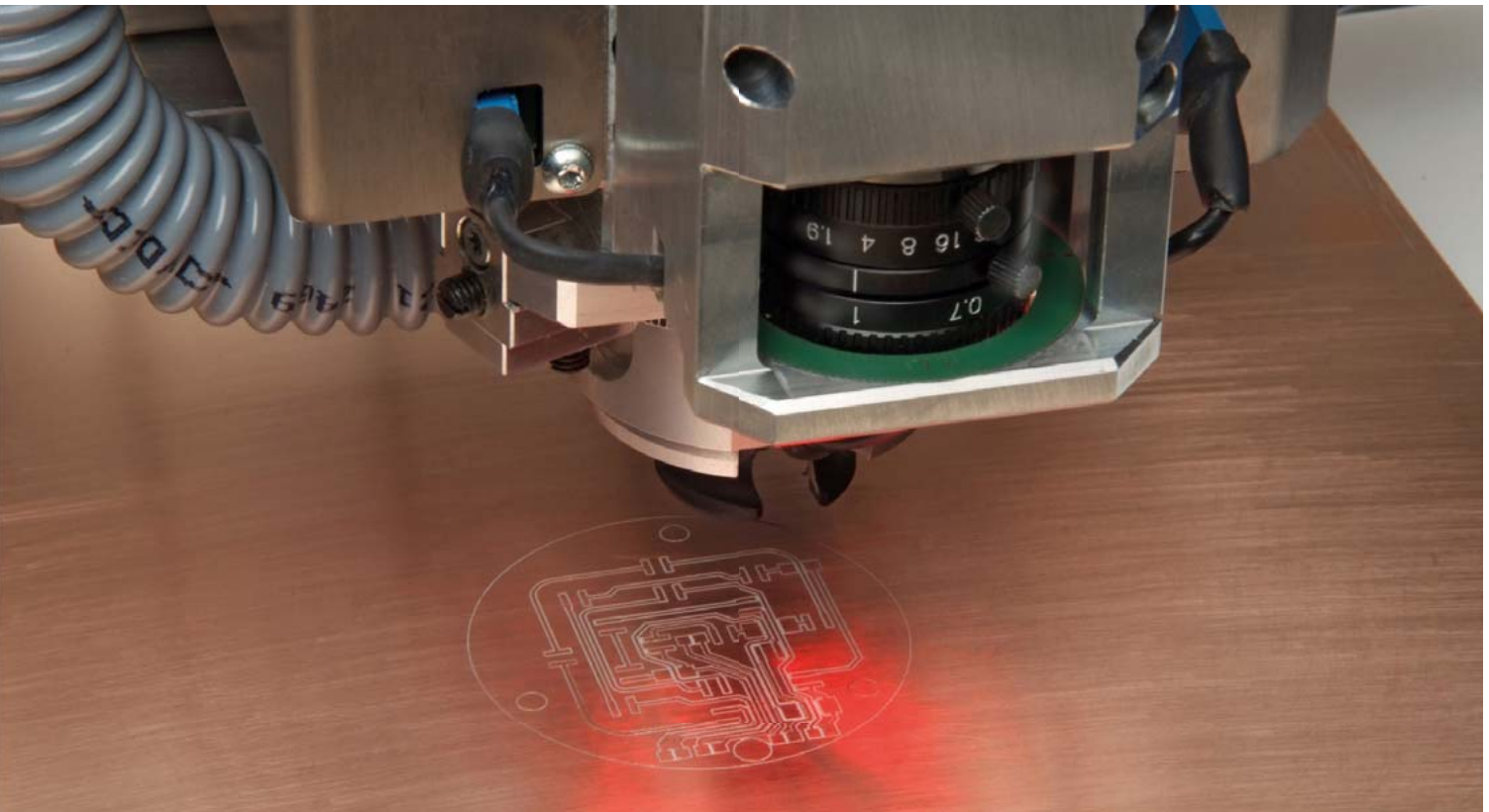
## PASS. We'll help you create the future of LED lighting.

Make it good, make it fast, make it easy — with PASS. Our Premium Application Support Services offers commercial businesses access to application engineering expertise, resources and lab services, supported by an à la carte program that you can mold to your own product or system needs. You give us your specifications, and we'll measure, simulate, prototype and evaluate your project and identify issues and solutions before you go to final implementation.

Unlike other service providers, we don't tie you up in lengthy, expensive, pro forma contracts. It's an effective, affordable program that gives you more control as you're involved every step of the way. In fact, you'll access PASS through a dedicated web page, where you can request services through a dynamic menu featuring simulation, prototype, LED data and system metrology services. Our qualification process determines if your business is a good fit for PASS

services. And, if we can't provide everything you need, we'll help you find the right solution.

**When you think about where to test your LED lighting ideas and applications, think of OSRAM Opto Semiconductors, and get your PASS to the future.**



## Prototype Services

Choose from standard, custom or system prototyping to better design and improve your projects. PASS offers you á la carte flexibility and the ability to make changes throughout the process. We'll help you realize your concepts quickly and easily.

### Standard Printed Circuit Boards

Choose from a list of standard available printed boards. Define your quantity and specific LED part number to populate on the board.

- Allows easy evaluation of components
- Choose from single hex, cluster boards and linear designs

### Custom Printed Circuit Boards

Define a board for your specific requirements, including LED part number, board outline, mechanical features and component positions.

- Easily evaluate OSRAM LED components in your design
- Develop first proof of concept boards

### System Mockups

We will help you define system elements around OSRAM Opto Semiconductors' LEDs using your specifications, and assist in proof of concept for partial or complete hardware solutions.

- Get engineering support to create your solution
- Use components and integrated LED solutions from OSRAM

#### Related PASS services

- LED Measurement
- Custom Printed Circuit Boards

#### Related PASS services

- LED Measurement
- System Mockups

#### Related PASS services

- LED Measurement
- System Metrology

# System Metrology Services

OSRAM Opto Semiconductors has testing facilities and engineering expertise to help you measure the performance of your LED design. We'll help you make sure you're creating the most effective and efficient design possible.

## Integrating Sphere Measurement

Measure your system hardware and gain valuable data on the performance of the photometric characteristics.

- Photometric Flux, Efficacy (lm/W)
- Chromaticity (Cx, Cy), (u',v'), Correlated Color Temperature (CCT), Color Rendering (CRI), and Spectrum

### Related PASS services

- Simulate your Optical System
- System Prototype

## Goniophotometer Measurement

Your hardware will be measured in a goniophotometer, and you will receive a report including spatial intensity data and performance plots.

- IES/LDT formatted file provided
- Benchmark characteristics to help define a performance specification
- Identify and solve hardware optical problems early in the design process
- Measure system performance before final certification

### Related PASS services

- Simulate your Optical System
- System Prototype

## Thermal Spot & Area Measurement

Get thermal spot and area measurements for your system.

- Steady state and continuous temperature measurements
- Diagnose problem areas and solutions of an LED system

### Related PASS services

- Simulate your Thermal System
- System Prototype

## System Luminance

Luminance Spot and Area Measurement.

- Luminance (cd/m<sup>2</sup>)
- Chromaticity (Cx, Cy), (u',v') and Spectrum
- Define a set of test points or area to measure
- Characterize uniformity of a back or front-lit surface

### Related PASS services

- Simulate your Optical system
- System Prototype



# Simulation Support Services

Simulate your system or application and get design support for your project to ensure the highest quality outcome. With PASS, you'll know your system works before you prototype your hardware.

## Simulate Your Optical System

Using optical modeling software, PASS experts simulate your system with known opto-mechanical properties and specified LEDs to assess its performance.

- Measure performance before going through the time and cost of producing hardware
- Assess more than one option to choose the best solution

## Simulate Your Thermal System

Use thermal modeling software to test thermo-mechanical geometry and material properties. You provide CAD system elements and materials information and we'll provide the modeling.

- Assess thermal performance before prototyping hardware
- Compare options for thermal performance in a virtual environment

## Optics Design Support

PASS experts will create a conceptual opto-mechanical proposal and model a system to your detailed performance specifications.

- Get expert help meeting your system requirements with OSRAM Opto Semiconductors' LEDs

## Thermal Design Support

Simply supply us with your specifications for performance and LED components and we'll help you design a system to meet those specifications

- Get expert support to help you meet your thermal performance target
- Save time and money

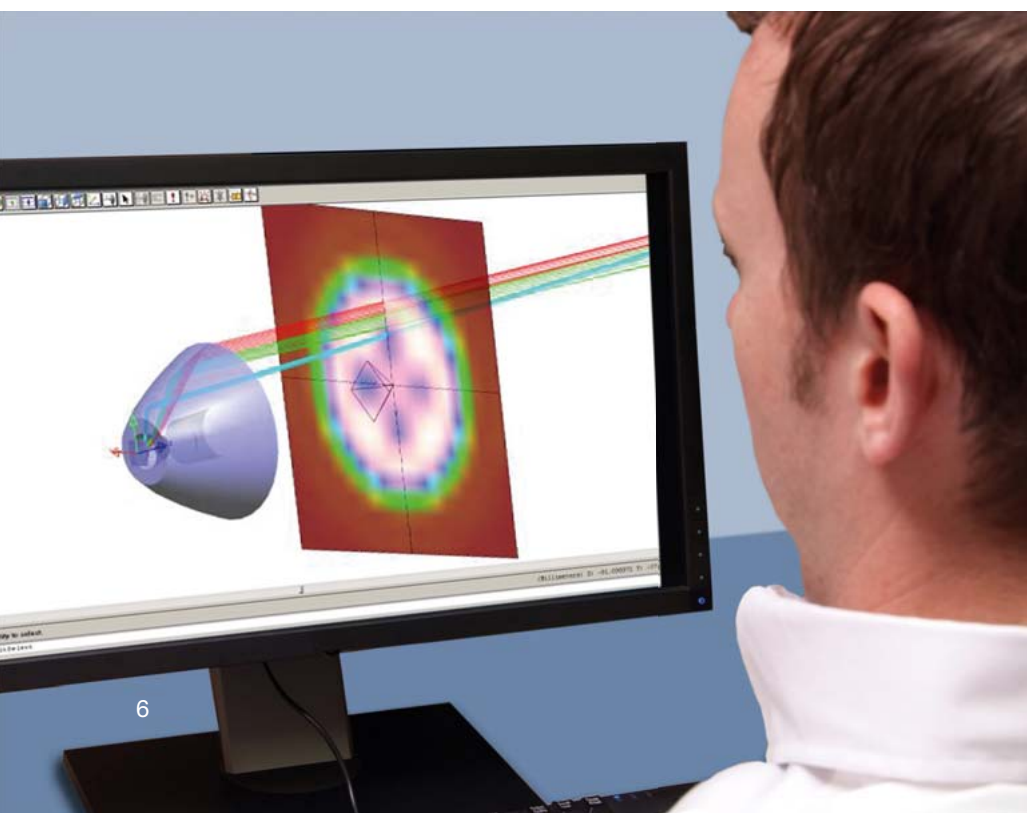
## Model Your Illumination Environment

We'll install an LED system model in a specified environment using illumination software, and assess its performance.

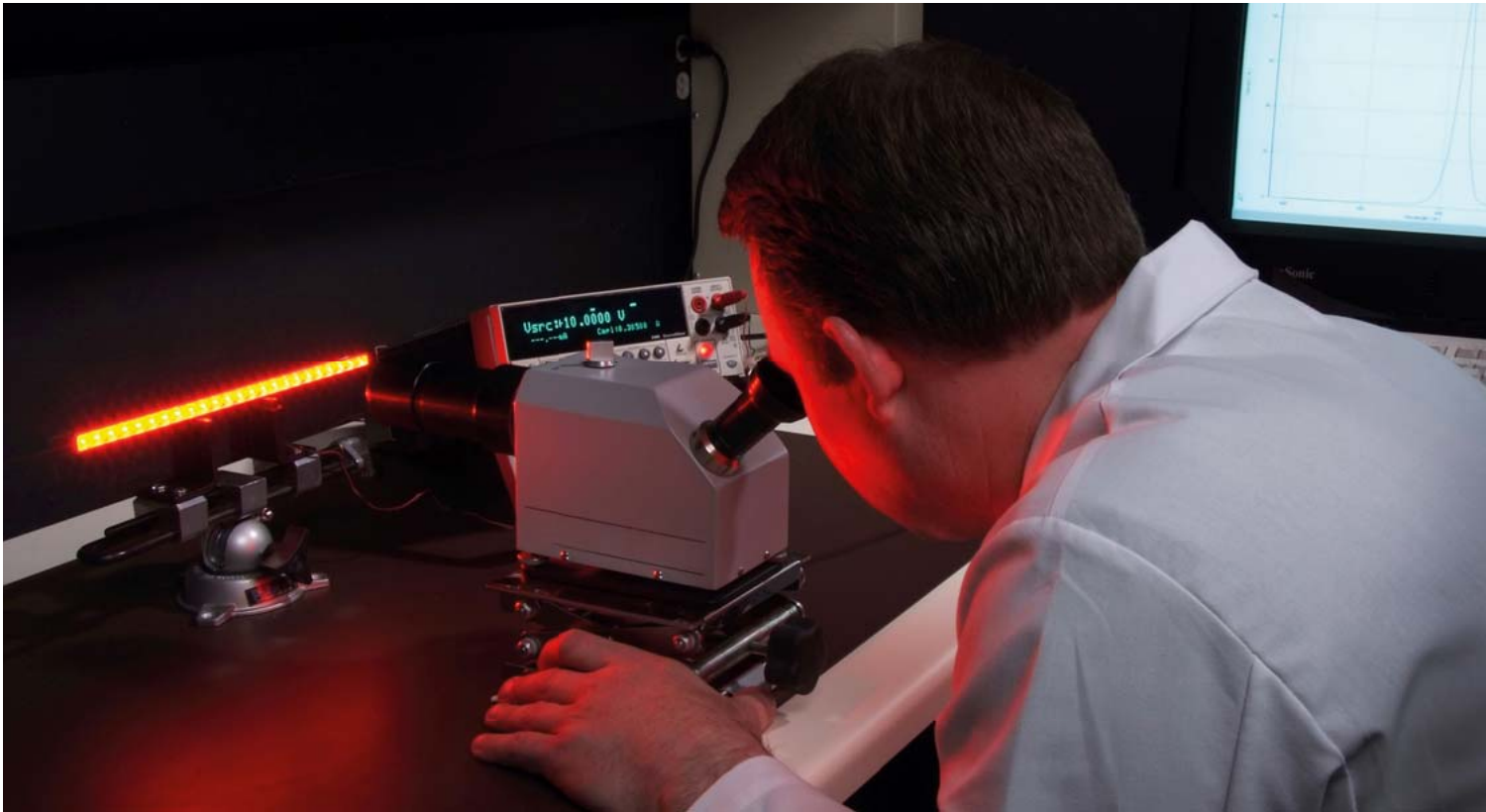
- See your system in a virtual environment and verify performance
- Environments include parking areas, streets, indoor spaces and many more
- Measure system performance before actual installation

## Related PASS services

- System Prototype
- Lumen Maintenance Estimation
- Optical Design Support
- Goniophotometer Measurement
- LM-80 / TM-21 Reports







## LED Data

OSRAM Opto Semiconductors' LEDs are second to none — and we're willing to prove it. We will provide all the data you need on combinations of our LEDs to create the perfect solution.

### LED Measurements

Give us your specifications on part number, binning, quantity and drive current, and we'll give you a measured LED data report. Standard measurement parameters at a specified current include flux, spectra, radiometric watts, chromaticity, CCT and Vf.

- Allows for the precise characterization of performance in a system

### Lumen Maintenance Estimation

With estimated application conditions and your part specifications, we'll provide an estimated Lumen Maintenance for OSRAM Opto Semiconductors' LEDs.

- Get performance information before launching product

### LM-80/TM-21 Reports

Certifying your fixture? Request a report on our General Illumination LED components.

- LM-80 and TM-21 reports for selected components
- Use these reports for relevant certification programs

### Related PASS services

- Standard and Custom PCBs
- Thermal Measurement

**More information about OSRAM Opto Semiconductors:**

OSRAM Opto Semiconductors' Website:  
**[www.osram-os.com](http://www.osram-os.com)**



Premium  
Application  
Support  
Services



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