

Vertical Two-Meter Uniform Source



Technical Challenge

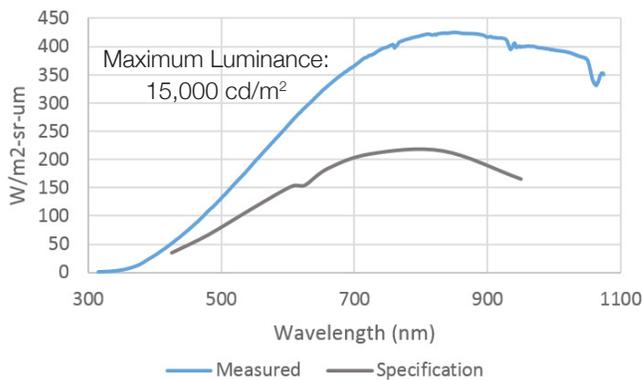
The development of certain optical systems requires unique and sometimes difficult testing configurations. In this case, the client needed to calibrate a sensor to be used in a giant telescope with a uniform source. The size and nature of the telescope required the source to be capable of a high luminous flux and have a 0.8 meter exit port that faces vertically upwards.

Labsphere's Solution

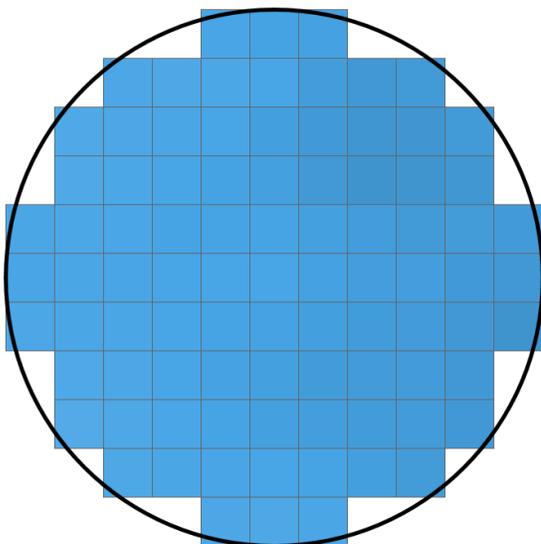
A unique frame needed to be designed to allow the sphere to be oriented vertically. Labsphere was able to achieve the desired spectral output using a total of nineteen light sources. The system is equipped with a multitude of other features that improve its performance and usability.

- Manual shutter to keep the sphere clean and to allow the lamps to be on without dealing potential thermal damage to optical components.
- Sphere-tilting system that allows for a $\pm 2^\circ$ adjustment from the vertical in any direction with a swiveling base, three jacking bolts, and a digital inclinometer
- Variable attenuators mounted with one group of lamps to allow for continuous adjustability from zero to full power
- Grouped lamp sets for maximum uniformity at all levels of operation
- Custom HELIOSense software with added features:
 - Options to automatically set lamp configurations or tune them manually
 - "Hunt and Seek" function to automatically find a setting to match a certain radiance level within a specific band
 - Hands-free system calibration routines

Spectral Radiance



Spatial Uniformity - 98%



Benefits

- Because every light source is halogen-based, a similar spectrum and color temperature are maintained regardless of the lamp configuration.
- The sphere matches the client's desired orientation, and the tilting system ensures that the sphere can be precisely aligned to the optical axis.
- The system is ISO 7 cleanroom compliant and ready for cleanroom testing.
- With the software optimized for the client's application, usability and testing efficiency is maximized.
- Broad spectral control and availability, allowing fine-tuned adjustment of spectral radiance, color temperature, and wavelength distribution with Labsphere's HELIOSense software.
- Full calibration and test reports were provided, including color temperature, radiance stability, spectral radiance, continuous adjustability, and uniformity.
- With 98% spatial and 98% angular uniformity, the system ensures accurate results on every test.