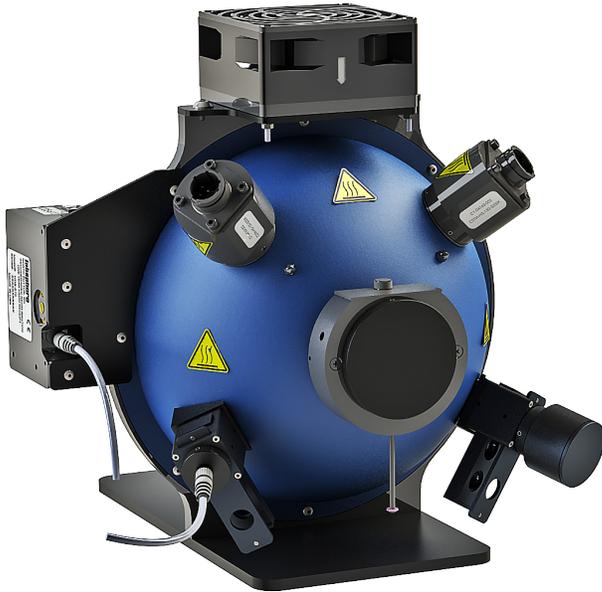
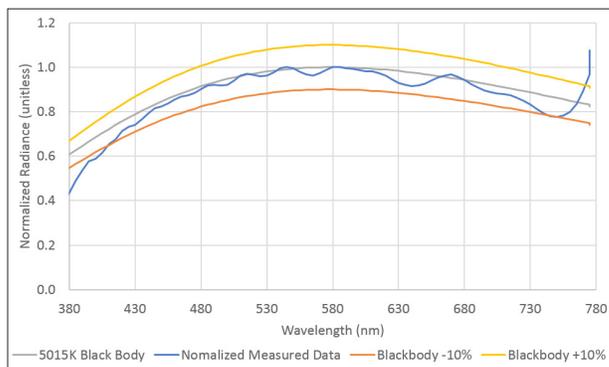


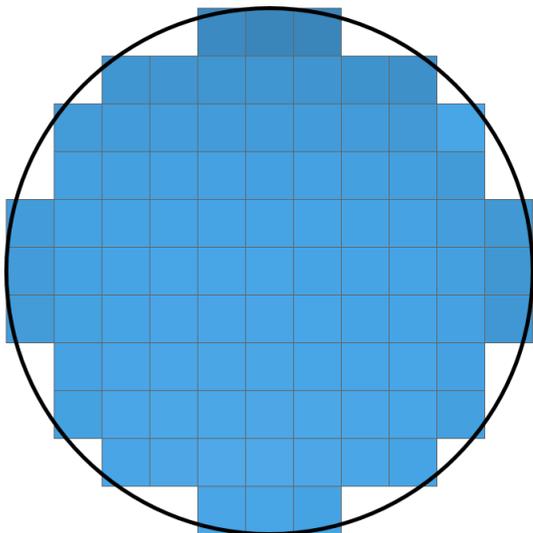
# Uniform Blackbody Calibration Source



Normalized Measured Radiance vs. 5015K Black Body Curve



Spatial Uniformity - 97.5%



## Technical Challenge

When developing camera systems for measuring the coordinated color temperature (CCT) of a light source, it is crucial that it is calibrated correctly so that it can provide an accurate reading. This is often done using black body standards with known temperatures. A research institute requested a black body source that could simulate 5000K and 2856K curves to calibrate a streak camera it was developing. The system would need to be small enough to fit through a 340 mm port hole into a chamber used in their testing configuration.

## Labsphere's Solution

Labsphere provided the client with a black body source that was accurate, safe, easy to use, and could be integrated easily within their testing environment. This 8 inch sphere has a 2 inch exit port and is equipped with several high-grade components that allow it to meet the client's specifications:

- Two halogen lamps for providing up to 40,000 cd/m<sup>2</sup> at the exit port
- Color balancing Omega filter over the exit port to adjust the CCT and shape the spectral output into a black body curve
- Silicon detector assembly for measuring spectral flux in the visible, and a spectrometer for measuring the wavelength distribution between tests
  - Filter assemblies for both detectors, including a shutter slide, additional color-balancing Omega filters, and a slide for a third filter
- Application-specific mounting baseplate designed to fit into the chamber as well as 3 meter cables to allow the power rack and computer to stay outside
- Cooling fan to prevent potential burns and damaged equipment

## Benefits

- With 97.5% spatial uniformity, accurate results are guaranteed on every test
- The flexibility of the system allows the client to calibrate their camera at multiple temperatures using just one system
- The spectral output matches closely with the black body curves requested by the client, offering the same accuracy as a standard black body source
- Fine-tuned control over each component and live data collection and visualization made easy with Labsphere's HELIOSense software
- Strong communication with Labsphere allowed the client to receive a system designed and built specifically for their testing environment
- The detectors provided ensure that the lamps are always calibrated accurately and the tests always have reliable reference data