Gooch & Housego

Comparison of OL Series 455 with Hoffman LS-65-8D

Both the OL Series 455 and the Hoffman Engineering LS-65-8D are integrating sphere calibration sources used to calibrate various imaging type photometers, radiometers, and spectroradiometers. Although similar in application and concept, there are a number of differences between the two units. Most important is the capability of obtaining the OL Series 455 with different size spheres, which enables Gooch & Housego to provide radiating ports from 1 to 6 inches in diameter. The Hoffman source is available with only one sphere size (6-inch diameter with a 1.75 inch port).

- Both units offer a photopically corrected silicon detector monitor. The Hoffman unit has temperature stabilized detectors, but since the response of the silicon detector varies very little with temperature in the visible this can be considered nothing more than window dressing as any significant change in response with temperature occurs in the IR. The only significant effect of temperature variation is on the detector's dark current, and this is zeroed in the Gooch & Housego and Hoffman sources. (One can presume the Hoffman unit has a shutter, but it is not mentioned in the literature.)

- Gooch & Housego gives a stability spec of 0.5% per day (8 hours). This is considerably better than the Hoffman spec of 0.1% per hour. Hoffman uses red/blue filters to indicate color temperature. Since this is inaccurate unless fully calibrated, we must assume they do a complete calibration. Gooch & Housego calibrates color temperature with respect to lamp current - a much more accurate method.

- Gooch & Housego uses in-line geometry, 1 1/2" exit port, sphere as compared to 1 3/4" right angle sphere. The Gooch & Housego design should theoretically be much more uniform but Hoffman spec's 0.2% against Gooch & Housego's 0.5%. Uniformity measurements can vary greatly depending on the measurement technique and on the spot size and the number of measurements taken. Without knowing how they measure this, we can't comment on this difference.

- The luminance range for the Hoffman is 0-2000 fL @ 2856K against the OL 455-6-X of 0.0001-12,000 fL. Obviously, both units can read zero, but a more meaningful specification is the minimum resolution. The resolution of the Hoffman is not given, whereas, the resolution of the OL 455-6-X is 0.0001 fL, allowing one to set a luminance level of 0.01 fL and still having three digits of display resolution. The difference in the maximum luminance levels of the two sources is also quite dramatic.

- Gooch & Housego offers a calibration option out to 2500 nm. Hoffman only specifies 1100 nm.

- The Gooch & Housego sphere is coated with packed PTFE. The Hoffman is coated with $BaSO_4$. PTFE has a higher reflectance in the UV and IR, is more stable (does not yellow with time as the $BaSO_4$), and it does not fluoresce. All of these features make the PTFE coated sphere far superior to the $BaSO_4$ sphere.

- The sources are comparably priced.

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