

Sensors • Luminance Probe

PMA2133



Measures Luminance According to Photopic Luminous Efficiency Curve

Applications

- Quality Control of CRTs
- Inspection of Monitors

Features and Benefits

- High Sensitivity
- Wide Dynamic Range
- Excellent Long-Term Stability
- Cosine Corrected
- NIST Traceable Calibration
- Selectable Units

The PMA2133 is a portable luminance detector with spectral response following the CIE photopic action spectrum. This detector is designed to have a spectral response like that of the human eye's visual response in the photopic region.

The photopic spectral luminous efficiency curve peaks at 555nm and it is normalized to 1 at that wavelength.

Luminance is the luminous intensity per unit area projected in a given direction. The standard unit for luminance is cd/m^2 (candela per square meter, sometimes referred to as nit). Another common unit of luminance is fL (footlambert) where $1 \text{ fL} = 3.426 \text{ cd}/\text{m}^2$. Luminance is essentially the amount of visible light leaving a point on a surface in a particular direction. The light that leaves the surface can be due to emission, reflection, or transmission.

Calibration

The PMA2133 Luminance Probe is calibrated by transfer from a NIST traceable standard detector S/N (948)/Filter (P-421)/Aperture combination. The calibrating source is a quartz-halogen lamp with a six-inch integrating sphere.

The detector requires yearly re-calibration.

Specifications	
Spectral Response	Follows CIE photopic spectral luminous efficiency curve (400-700nm) Figure 1
Field of View	8° 2'
Range	0 - 6,800 cd/m ² , 0 - 2,000 fL
Display Resolution	0.01 cd/m ² 0.01 fL
Operating Environment	32 to 120 °F (0 to +50 °C) No Precipitation
Temperature Coefficient	1% /°C for Solar Radiation
Cable	5 ft. Straight Cable (1.5m)
Diameter	1.6" (40.6mm)
Height	3.2" (81.3mm)
Weight	3.9 oz. (110 grams)
Ordering Information	
PMA2133	Luminance Probe
References	
¹ "American National Standards: Nomenclature and Definitions for Illuminating Engineering" (1981). Illuminating Engineering Society, New York.	
² Smith, Warren J. "Modern Optical Engineering", McGraw-Hill, New York (1966).	

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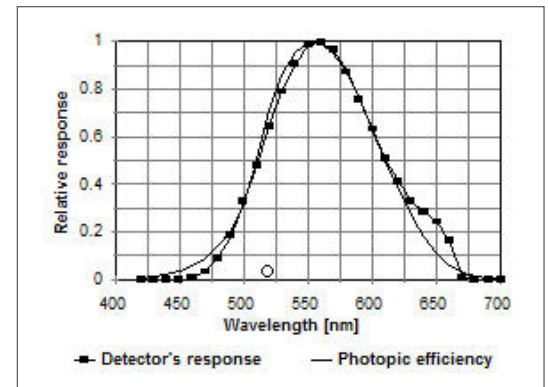


Fig. 1. PMA2133 Spectral Response