ANSI/IES LM-37-20

Illuminating ENGINEERING SOCIETY

APPROVED METHOD: DETERMINATION OF AVERAGE LUMINANCE (CALCULATED) FOR INDOOR LUMINAIRES

AN AMERICAN NATIONAL STANDARD

Approved American National Standard ANSI

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Prepared by the
IES Testing Procedures Committee

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Prepared by the IES Testing Procedures Committee.

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1.1 Introduction

The concept and limitations of average luminance is addressed in this document. Although simple projected area examples are presented and more detailed area calculation methods are developed for reference purposes in **Annex A**, it remains the user's responsibility to seek out the most appropriate methods or formulas each time he or she determines the actual projected areas for a specific luminaire.

1.2 Scope

The methods of calculating average luminance, contained in this Guide, cover various open bottom apertures as well as flat and drop lensed units including units, with multiple openings in the light emitting area. The candela values of interest are obtained by means of IES techniques for relative or absolute photometry, and are not obtained from field measurements in application. *Note:* Average luminaire luminance is not a reliable indicator of either direct or reflected glare due to potential luminance non-uniformity.

The averaging of data from spot luminance measurements obtained with luminance meters or high resolution imaging systems is not within the scope of this document. This calculation is based solely on the candela values obtained by goniometric measurement of the luminaire and the luminous projected area.

All light sources, for which there are current standards for luminaire photometry, are covered by this document. These include incandescent, fluorescent, high intensity discharge (HID), low pressure sodium, and LED sources.

2.0 Normative References

Illuminating Engineering Society. *ANSI/IES LS-1-20, Nomenclature and Definitions for Illuminating Engineering*. New York: IES; 2020. Online: www.ies.org/standards/definitions/. (Accessed 2019 Jan 11).

3.0 Nomenclature and Definitions

3.1 AB

The luminous area of the bottom of a lens case, measured in square meters (preferred) or square feet, viewed from nadir.

3.2 $A_B\theta$

The projected luminous area of the bottom of a lens case as viewed from angle θ from nadir, measured in square meters (preferred) or square feet.

3.3 angle θ (vertical viewing angle)

This angle is expressed in degrees as measured from nadir. It is the angle at which the area projections are calculated, and at which the appropriate luminaire intensity (cd) is selected for average luminance calculations.