ANSI/IES LM-31-20

Illuminating ENGINEERING SOCIETY

APPROVED METHOD:
PHOTOMETRIC TESTING OF ROADWAY AND AREA LIGHTING LUMINAIRES USING INCANDESCENT FILAMENT OR HIGH INTENSITY DISCHARGE LAMPS

AN AMERICAN NATIONAL STANDARD

Approved American National Standard ANSI

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Prepared by the IES Testing Procedures Committee

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Foreword

This approved testing methods guide is a revision of LM-31-1995. Significant changes have been made in the revision. In particular the structure of the revised LM follows the IES Testing Procedure guidelines for organizing an LM that uses a structure more suitable to a standard. Further, there has been an attempt to harmonize the wording in this revision with revised versions of *ANSI/IES LM-10-20, Approved Method: Photometric Testing of Roadway and Area Lighting Fluorescent Luminaires; ANSI/IES LM-35-20, Approved Method: Photometric Testing of Floodlights Using High Intensity Discharge or Incandescent Filament Lamps*; and *ANSI/IES LM-46-20, Approved Method: Photometric Testing of Indoor Luminaires Using HID or Incandescent Filament Lamps*.

1.0 Introduction and Scope

1.1 Introduction

Exterior illumination provided by luminaires generally falls into the standard Type I, II, III, IV, V and VS classifications. Distribution patterns are typically bisymmetric, quadrilaterally symmetric, or completely symmetric. Illumination provided by luminaires such as outdoor wall packs, bollards, and unique cases of general area lighting may not be designed to fit into the standard classifications and may have completely asymmetric distribution patterns.

The test procedures for luminaires using incandescent filament or high intensity discharge (HID) lamps described herein can utilize either absolute or relative photometry methods. In both cases, general conditions of suitability such as test distance should be assessed for adequacy to ensure the validity of the test results.

1.2 Scope

This Lighting Measurement (LM) guide defines adequate and uniform methods for measuring and reporting the photometric characteristics of roadway and area lighting luminaires using incandescent filament or high intensity discharge lamps. It describes characteristics of luminaires and some components, as well as the requirements for the thermal environment and proper control of the electrical and mechanical systems involved. General test conditions and the testing procedure best suited for achieving accurate and consistent photometric results are defined.

This guide does not cover testing of luminaires using low pressure sodium lamps.

2.0 Normative References

2.1 ANSI/IES LM-28-20

Illuminating Engineering Society. Approved Method: Guide for the Selection, Care, and Use of Electrical Instruments in the Photometric Laboratory. New York: IES; 2020.

2.2 ANSI/IES LM-45-20

Illuminating Engineering Society. Approved Method: Electrical and Photometric Measurement of General Service Incandescent Filament Lamps. New York: IES; 2020.

2.3 ANSI/IES LM-51-20

Illuminating Engineering Society. Approved Method: The Electrical and Photometric Measurements of High Intensity Discharge Lamps. New York: IES; 2020.

2.4 ANSI/IES LM-54-20

Illuminating Engineering Society. IES Guide to Lamp Seasoning. New York: IES; 2020.

2.5 ANSI/IES LS-1-20

Illuminating Engineering Society. Lighting Science: Nomenclature and Definitions for Illuminating Engineering. New York: IES; 2020. Online: https://www.ies.org/standards/definitions/. (Accessed 2019 Sep 18).

3.0 Nomenclature and Definitions

The terms used in this document follow the definitions given in **Normative Reference 2.5**. Additional terms are defined below.