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*American National Standard for Electric Lamps—
Classification of the Beam Patterns of Reflector Lamps*

Secretariat:

National Electrical Manufacturers Association

Approved: September 28, 2020

American National Standards Institute, Inc.

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1 Scope, Purpose, and Application

1.1 SCOPE

This standard describes a system for classification of beam patterns and beam angles of reflector lamps. Also a method of describing light output is defined.

Reflector lamps are considered to be those lamps having a reflective coating applied to the reflector part of the bulb or a reflector permanently attached to the bulb with the reflector at least partially controlling the light flux distribution. Partial reflector lamps are also covered. Both symmetrical and asymmetrical beams can be classified. Lamps with various kinds of light sources are covered.

1.2 PURPOSE

The purpose of this standard is to provide a means to designate nominal beam angles and define expected tolerances about the nominal. This classification applies only to bare lamps and excludes luminaires or other systems.

1.3 APPLICATION

The definitions and classification included in this standard apply only to lamps for general lighting applications.

2 Normative References

The following publications contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the publications indicated below.

ANSI C78.21-2003, Incandescent PAR and R shapes
ANSI C78.40-1992, Specifications for Mercury lamps
ANSI C78.42-2004, High pressure Sodium lamps
ANSI C78.43-2005, Single-end Metal Halide lamps
ANSI C78.380-2005, Method of designation of HID lamps
ANSI C78.1340 – 1990, 450-Watt, 120-volt self-ballasted Mercury lamps
ANSI C78.1341 – 1990, 750-Watt, 120-volt self-ballasted Mercury lamps
ANSI C78.1342 – 1990, 160-Watt, 120-volt self-ballasted Mercury lamps
ANSI C78.1380 – 1988, 250-Watt, 120-volt self-ballasted Mercury lamps
ANSI/IES RP-16-1996, Nomenclature and definitions for illuminating engineering
IES LM20-1994, Approved method for photometric testing of reflector type lamps

3 Definitions

3.1 BEAM AXIS

The axis about which the light output flux is substantially symmetrical. In symmetrical beams, light flux is substantially symmetrical about the beam axis in planes through all rotational angles about the lamp and the beam axis. In asymmetrical beams, light flux is substantially symmetrical in two planes 90° from each other and through the beam axis.

The beam axis may or may not coincide with lamp axis through the lamp base or the lamp axis normal to the plane of any fixed points on the reflector.

3.2 CENTER BEAM INTENSITY (IC)

The value of light flux intensity in candelas (cd) measured on the beam axis. See figures 1, 2 and A1.