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American National Standard for Procedure for Use in Preparation of Lamp Space Drawings

National Electrical Manufacturers Association

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900 • Rosslyn. VA 2220
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ANSI C78.30-1997(S2018)

American National Standard

for electric lamps.

Procedure for Use in Preparation of Lamp Space Drawings

Secretariat C7
National Electrical Manufacturers Association

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American National Standards Institute

American National Standard

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First Edition
May 1997

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Foreword (This foreword is not part of the American National Standard C78.30-1997)

Accredited Standards Committee for Lamps, C78, used outline drawings for incandescent lamps which have been in existence for some time. However, these drawings were not made by a consistent technique and they suffered a severe lack of completeness. Some early drawings depicted a typical lamp without regard to the space it might take up when various dimensional tolerances were considered. Others showed both long and short bulbs without regard to skewness or eccentricity but did not add the credibility that dimensions would afford. Similar drawings in standards for other types of lamps introduced additional inconsistencies.

Subcommittee C78-1 undertook a project to remedy the shortcomings of earlier standard drawings. In addition, they set an objective to simplify the resultant space by using straight lines as much as possible and by eliminating complicated curves. Of course, this would have to be done so that no interference between a lamp and luminaire would occur.

SR30 was the result of that Subcommittee's work. It was first issued in 1981. Part IV was added in 1985. It covers single-based, high intensity discharge type lamps (among others) as a result of feedback from sub-committee C78-4. It contains step-by-step procedures that can be used to produce consistent, accurate, and simplified drawings. This First Edition of C78.30 capitalizes on the experience gained from applying the techniques outlined in the First and Second Editions of SR30. Although the procedures are written mainly for shapes that are usually used in incandescent and HID lamps, some minor revisions may be possible to extend the coverage to other fields. This standard is harmonized with IEC 1126.

Suggestions for improvement of this standard will be welcome. They should be sent to the National Electrical Manufacturers Association, 1300 N. 17th St., Suite 1847, Rosslyn, VA 22209.

This standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Lamps, C78. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the C78 Committee had the following members:

Al Rousseau, Chairman, C78
and Technical Coordinator
Randolph N. Roy, Secretariat
Jeanne L. Spicer, Coordinating Editor

Organization Represented:	*Name of Representative:*
Advance Transformer Company	Norman Grimshaw
Duro-Test Corporation	Larry Sheinberg
Edison Electric Institute	William Maguire (Delegate)
General Electric	Cynthia Minshall
Illuminating Engineering Society	Rita M. Harrold
ITS, Inc.	Craig Davenport
National Electrical Manufacturers Association	Ted Yahraus (Delegate)
OSRAM SYLVANIA INC.	Peter Bleasby
Philips Lighting Company	Al Rousseau
Underwriters Laboratories, Inc.	David Belt

At the time it approved this standard, the C78-1 Sub-Committee for Incandescent Lamps had the following members:

Organization Represented:	*Name of Representative:*
Duro-Text Corporation	(vacant)
GE Lighting	Bernard Rachel
	Cynthia Minshall (Alt.)
OSRAM SYLVANIA INC.	David Fox
	Richard Fleegal (Alt.)
Philips Lighting Company	Ed Hinde
	Duane Will (Alt.)
	Al Rousseau (Alt.)
Underwriters Laboratories, Inc.	David Belt

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for electric lamps:

Procedure for Use in Preparation of Lamp Space Drawings

1 Scope and purpose

1.1 Scope

This standard describes the procedures to be followed for the construction of lamp space drawings.

1.2 Purpose

It is the purpose of this standard to provide guidelines for the preparation of lamp space drawings for those specific bulq shapes and bases noted.

2 General

Lamp space drawings are intended to be a guide to lamp manufacturers, luminaire manufacturers and the general public. A separate space drawing is to be provided for each category of bulb base, and overall lamp length. The space defined in each drawing will permit the mechanical interchangeability of lamps made by different manufacturers.

This document contains the procedural steps for drawing lamps employing A, G, PS, PAR, R, L, E, and BT shaped bulbs. PAR type lamps designed for rim-mounting are excluded. Single-based lamps only are covered; no consideration has been given to double-based lamps. Although information is provided primarily for lamps with screw bases, consideration has been given to bayonet bases, and the procedures can be easily adopted for other types of bases.

3 Definitions and fundamental considerations

3.1 Lamp space drawing

A lamp space drawing is a simplified, planar representation of a three dimensional volume. A space drawing is designed to incorporate the maximum variations in lamp overall length, bulb bowl and neck dimensions, and "eccentricity" (as defined hereafter). All variations are accounted for relative to a fixed-position base. No allowances have been considered for the location of a lampholder relative to the remainder of a luminaire. No consideration has been given to special needs for ventilation, heat shielding, clearance for tools used during installation, etc. A lamp space drawing can be contrasted to a product drawing which shows internal technical features and dimensions of the assembled lamp itself.

3.1.1 The part of a lamp space drawing that depicts the maximum space occupied by any lamp in a particular category is shown as a solid-line outline. This outline is simplified to reduce the number of minor curved shapes of bulbs. Only major shape features are shown and straight lines are used as much as is practical.

3.1.2 Lamp space drawings are dimensioned with single-set numbers that define the required maximum space of the lamp occupancy. Any negative tolerances fall within this maximum space. Dimensions are in millimeters unless otherwise noted.

3.1.3 Within the maximum space outline a typical bulb outline may be shown. If shown, a dashed line shall be used. It should be based on nominal dimensions, although there shall be no attempt to show dimensions