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Energy Efficiency for Electronic Ballasts for T8 Fluorescent Lamps

National Electrical Manufacturers Association

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Foreword

This standard includes energy-efficiency requirements for declaration as NEMA Premium®–rated products. All safety-related requirements and energy-efficiency requirements shall be met for NEMA Premium ratings.

In the preparation of this standards publication, input of users and other interested parties was sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the Ballast Subdivision of NEMA by contacting:

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The Ballast Section developed this standard. Section approval of the standard does not necessarily imply that all section members voted for its approval or participated in its development. At the time the standard was approved, the Ballast Section was composed of the following members:

Acuity Brands Lighting—Conyers, GA
Advanced Lighting Technologies, Inc.—Solon, OH
Cooper Lighting—Vicksburg, MS
Espen Technology, Inc.—Paramount, CA
GE Consumer & Industrial, Lighting Systems—East Flat Rock, NC
Holophane—Newark, OH
Hubbell Lighting, Inc.—Orange, CT
Keystone Technologies, LLC—Blue Bell, PA
Lutron Electronics Company, Inc.—Coopersburg, PA
Osram Sylvania Electronic Control Systems—Lake Zurich, IL
Philips Lighting Electronics North America—Rosemont, IL
Robertson Worldwide—Blue Island, IL
SunPark Electronics Corp.—Gardena, CA
Technical Consumer Products, Inc.—Aurora, OH
Universal Lighting Technologies—Nashville, TN

1 Scope

This standards publication contains energy-efficiency requirements for evaluating electronic ballasts designed for use with four-foot 32-watt T8 fluorescent lamps with a lumen output greater than or equal to 3100 lumens.

2 Referenced Documents

The following standards contain provisions that through reference in this standard constitute applicable requirements. Since standards are subject to revision, the latest editions are to be consulted.

ANSI C82.2-2002, *American National Standard for Lamp Ballasts—Method of Measurement of Fluorescent Lamp Ballasts*

ANSI C82.11, Consolidated 2002, *American National Standard for High Frequency Fluorescent Lamp Ballasts—Supplements*

UL 935-2001, *Standard for Fluorescent-Lamp Ballasts*

3 Definitions

3.1 Ballast

An auxiliary device used with an electrical discharge lamp(s) to obtain the necessary circuit conditions (voltage, current, and wave form) for the proper starting and operation of a particular fluorescent lamp(s) from a particular line voltage and frequency.

3.2 Ballast Efficacy Factor (BEF)

The ratio of the ballast factor in percent to the total input power in watts. This number is used to compare the efficiency of differing lighting systems. *BEF = BF% / Total Input Power Watts*

3.3 Ballast Factor (BF)

The percentage of light output produced when a fluorescent lamp(s) is energized from a commercially available ballast as compared to the light output produced when energized from a reference ballast.

3.4 Ballast Frequency

The frequency at which the ballast operates the lamp, measured in Hertz (Hz) or kilohertz (kHz).

3.5 Power Factor

The ratio of input wattage to the product of root-mean-square voltage and root-mean-square current. It represents the amount of current and voltage that a ballast actually uses as a fraction of what the utility supplies.

3.6 Lamp Lumens (lm)

The SI unit of luminous flux, which is equal to the amount of light given out through a solid angle by a source of one candela radiating equally in all directions.