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Self-Ballasted Lamps and Lamp Adapters

Underwriters Laboratories Inc. (UL)
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UL Standard for Safety
for
Self-Ballasted Lamps and Lamp Adapters, UL 1993

First Edition, Dated September 24, 1993

Revisions: This Standard contains revisions through and including May 26, 1999. UL is in the process of converting its Standards for Safety to the Standard Generalized Markup Language (SGML). SGML – an international standard (ISO 8879-1986) – is a descriptive markup language that describes a document's structure and purpose, rather than its physical appearance on the page. Significant benefits that will result from UL's use of SGML are increased productivity, reduced turnaround times, and data and information consistency, reusability, shareability, and portability. The changes noted in these revised pages are needed to modify the format and layout of this Standard to allow it to be converted to SGML. These editorial changes are now in effect.

A change is indicated by a note following the affected item. The note is preceded and followed by an asterisk.

The revisions dated May 26, 1999 include a reprinted title page (page 1) for this Standard.

The revisions dated May 26, 1999 were issued to remove the "94" prefix from the flammability classifications. This type of flame classification has become familiar globally, therefore there is no need to retain the "94" designation.

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New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing, Recognition and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

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UL 1993

Standard for

Self-Ballasted Lamps and Lamp Adapters

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September 24, 1993

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction which conflict with specific requirements of the Standard cannot be judged to comply with the Standard. A product employing materials or having forms of construction not addressed by this Standard may be examined and tested according to the intent of the requirements and, if found to meet the intent of this Standard, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

Section 1 effective March 31, 1995

1.1 These requirements cover fluorescent self-ballasted lamps and fluorescent lamp adapters rated 120 volts nominal for use with Edison-base lampholders in incandescent lighting fixtures and portable electric lamps. These products are intended for use in accordance with the National Electrical Code, ANSI/NFPA 70.

1.1 revised September 25, 1996

1.2 These devices incorporate resistance, reactance, or electronic (solid state) type ballasts.

1.3 These requirements do not cover medium-to-medium base (E26) fittings that incorporate controls such as photocells, motion detectors, radio controls, or dimmers.

1.4 These devices are not intended for use with emergency exit fixtures or emergency exit lights.

1.5 A product having features, characteristics, components, materials, or systems new or different from those in use when the Standard was developed, and that involves a risk of fire, electric shock, or injury to persons, shall be evaluated using the appropriate additional component and end-product requirements as determined necessary to maintain the level of safety for the user of the product as originally anticipated by the intent of this Standard.

2 Glossary

Section 2 effective March 31, 1995

2.1 For the purposes of these requirements the following definitions apply. See Figure 2.1 for the definitions in 2.3, 2.4 and 2.13.

2.2 The term "device" is used to denote fluorescent self-ballasted lamps and fluorescent lamp adapters covered by this standard. The name of the device is used if a requirement applies to only one of them.

2.3 DEVICE BASE – The Edison screw base that connects the device to an Edison screw lampholder in a lighting fixture or portable electric lamp.

2.4 DEVICE LAMPHOLDER – The lampholder provided for the replaceable fluorescent light source.

2.5 DEVICE LAMPHOLDER KEYING – A lampholder design that can accommodate only matching lamp bases.

2.6 ELECTRONIC BALLAST – A ballast, generally involving high frequency switching that is controlled by active components (transistors, thyristors, and the like), and with the lamp ballasting impedance provided by a series capacitive or inductive reactance appropriate for the high switching frequency.

2.7 LAMP ADAPTER – An adapter that has a replaceable light source, may have a replaceable starting device, and incorporates and permanently encloses all other elements that are necessary for operation.

2.8 LAMP CONNECTOR – A set of contacts attached to flexible conductors which provide a removable means for electrical connection to a lamp but does not provide mechanical support.

2.9 LIVE PART – Any conductive part where the measured voltage is greater than 30 V rms or 42.4 V peak (between parts of opposite polarity) to ground.

2.10 LOCATION –

a) DAMP LOCATION – An exterior or interior location that is normally or periodically subject to condensation of moisture in, on, or adjacent to, electrical equipment, and includes partially protected locations under canopies, marquees, roofed open porches, and similar locations.

b) DRY LOCATION – A location not normally subject to dampness, but may include a location subject to temporary dampness as in the case of a building under construction, provided ventilation is adequate to prevent an accumulation of moisture.

c) WET LOCATION – A location in which uncontrolled liquids may drip, splash, or flow on or against electrical equipment.

2.11 POWER CAPACITOR – A capacitor used with a magnetic ballast that is connected:

a) In series with a lamp or lamps and provides the ballast impedance for the lamp current, or

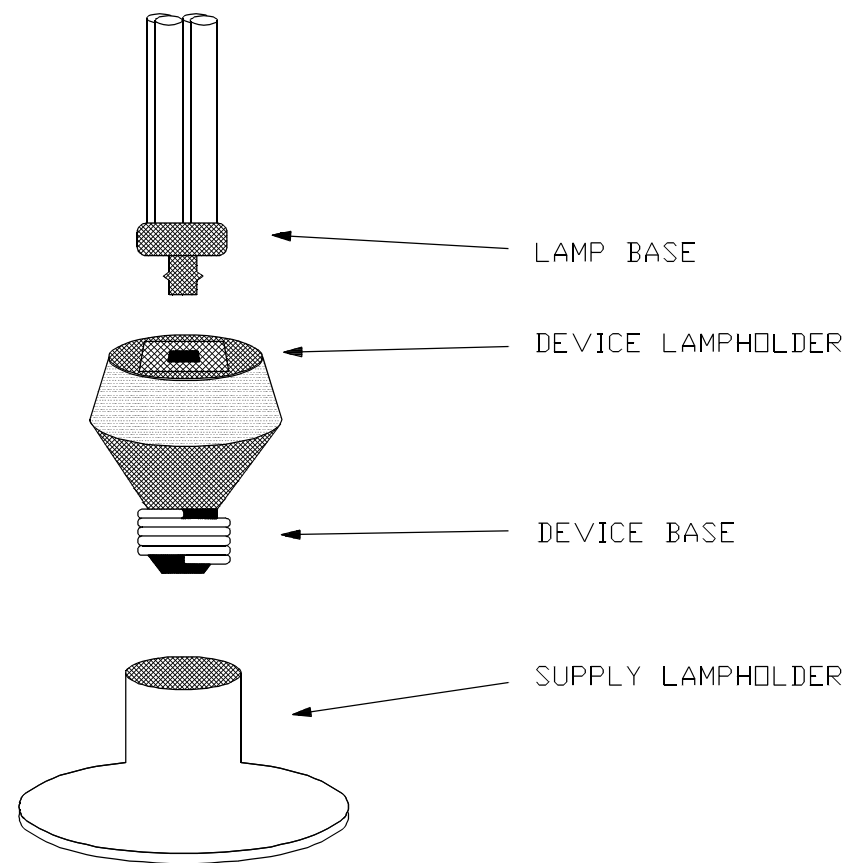
b) For power-factor correction across the input leads of the ballast or across an extension of the primary winding.

2.12 SELF-BALLASTED LAMP – A device provided with a lamp base and incorporating a non-replaceable light source and any additional elements necessary for starting and stabilizing operation of the light source, which cannot be dismantled without being permanently damaged.

2.13 SUPPLY LAMPHOLDER – The Edison-base lampholder of an incandescent lighting fixture or portable electric lamp that can accommodate and supply power to a self-ballasted lamp or lamp adapter.

2.14 TYPE TEST – Testing of a representative sample of the device with the objective of determining if the device, as designed and manufactured, can meet the requirements of this standard.

Figure 2.1
Sample device



SM685

3 General

Section 3 effective March 31, 1995

3.1 Components

3.1.1 Except as indicated in 3.1.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of Standards covering components generally used in the products covered by this standard.

3.1.2 A component need not comply with a specific requirement that:

- a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

3.1.3 A component shall be used in accordance with its recognized ratings established for the intended conditions of use.

3.1.4 Specific components are recognized as being incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions for which they have been recognized.

3.2 Units of measurement

3.2.1 If a unit of measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value in International System (SI) units is the requirement.

3.2.2 All values of voltage and current are root mean square (rms) values unless otherwise noted.

3.3 References

3.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

4 Assembly and Packaging

Section 4 effective March 31, 1995

4.1 A device shall be completely assembled and wired with each electrical component mounted in place and with each splice and connection completed when shipped from the factory. The lamp may be packaged separately in the case of a lamp adapter.