STANDARD FOR SAFETY

UL 8753, Field-Replaceable Light Emitting Diode (LED) Light Engines

Standards Council of Canada
Conseil canadien des normes

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UL Standard for Safety for Field-Replaceable Light Emitting Diode (LED) Light Engines, UL 8753

First Edition, Dated July 31, 2013

Summary of Topics

This revision to UL 8753/ULC-S8753 is being issued to update the title page to reaffirm approval as an American National Standard and as a National Standard of Canada. No changes in requirements have been made.

There are national differences only where standards (U.S. vs. Canadian) are referenced. However, the body of the standard is technically identical for Canada and the U.S.

The requirements are substantially in accordance with Proposal(s) on this subject dated February 16, 2018.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

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Prepared by:

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Underwriters Laboratories Inc.
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ANSI/UL 8753-2013 (R2018)

Commitment for Amendments

This Standard is issued jointly by Underwriters Laboratories Inc. (UL) and ULC Standards. Amendments to this Standard will be made only after processing according to the Standards writing procedures by UL and ULC Standards.

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In Canada, written comments are to be sent to ULC Standards, 400 – 171 Nepean Street, Ottawa, Ontario KP2 0B4. Proposals should be submitted on a Standards Revision Request Form available from ULC Standards.

This ANSI/UL Standard for Safety consists of the First Edition including revisions through August 3, 2018.

The most recent designation of ANSI/UL 8753 as a Reaffirmed American National Standard (ANS) occurred on August 3, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), an informative Annex, or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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Preface

This is the common UL and ULC Standard for Field-Replaceable Light Emitting Diode (LED) Light Engines. It is the First edition of both CAN/ULC-S8753 and ANSI/UL 8753.

This Joint Standard was prepared by Underwriters Laboratories Inc., ULC Standards, and the Technical Committee on Field-Replaceable LED Light Engines. The standard was formally approved by the UL/ULC Technical Committee on Field-Replaceable LED Light Engines. The efforts and support of the Technical Committee are gratefully acknowledged.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Annex A, Annex B, and Annex C, all identified as normative, form a mandatory part of this Standard.

Note: *Although the intended primary application of this Standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.*

Level of Harmonization

This Standard is published as an identical standard between UL and ULC Standards. An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation shall be word for word for editorial changes.

Interpretations

The interpretation by the SDO of an identical or equivalent standard shall be based on the literal text to determine compliance with the standard in accordance with the procedural rules of the SDO. If more than one interpretation of the literal text has been identified, a revision shall be proposed as soon as possible to each of the SDOs to more accurately reflect the intent.

1 Scope

1.1 This standard specifies the requirements applicable to field replaceable light-emitting diode (LED) light engines rated up to 347 volts (nominal) and provided with integral lamp bases of other than the screw, bayonet, or pin type configurations typically found on incandescent or fluorescent light sources.

1.2 This standard does not cover:

a) LED devices that are integral components and which form a non-replaceable part of a luminaire, such that they cannot be tested separately from the luminaire;

b) LED lamps or light engines with screw, bayonet or pin-type bases, intended as replacements for incandescent or fluorescent lamps; or

c) LED light engines having a means of supply connection other than the lamp bases allowed by 1.1, such as custom wiring harnesses.

1.3 This standard does not cover the holders, sockets, and the like to which these LED light engines are intended to be mounted. Such products are covered by UL 8754 / ULC-S8754.

2 Reference Publications

2.1 See Annex A for a list of publications referenced in this standard. 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.

2.2 Where any clauses from other standards are referenced in this standard, this is to be interpreted as meaning that all requirements of the referenced clauses apply, except where it is clearly non-applicable to the product being evaluated, or superseded by requirements in this standard.

2.3 Throughout this standard, the CSA and ULC standard references apply to products intended for use in Canada, while the UL standard references apply to products intended for use in the United States. Combined references are commonly separated by a slash (“ / ”).

2.4 For the purposes of this standard, referenced text in the CSA C22.2 No. 1993 / UL 1993, using the word “ballast” is understood to apply to LED drivers, while text using the word “lamp” is understood to apply to LED light engines.

3 Definitions

3.1 The following terms and definitions apply in this standard.

3.2 CIRCUIT, CLASS 2 –

In Canada:

A circuit for which the isolation and electrical output characteristics comply with either CAN/CSA C22.2 No. 223 or both CAN/CSA C22.2 No. 66.1 and the Class 2 requirements in CAN/CSA C22.2 No. 66.3, and that is therefore eligible to be installed as such in accordance with Section 16 of CSA C22.1.

In the United States:

A circuit for which the isolation and electrical output characteristics comply with UL 1310 or the Class 2 requirements in UL 5085-3 and that is therefore eligible to be installed as such in accordance with Article 725 of ANSI/NFPA 70.

3.3 CIRCUIT, ISOLATED LOW VOLTAGE, LIMITED ENERGY (LVLE) – A circuit for which the isolation and electrical output characteristics comply with CAN/CSA-C22.2 No. 250.13 / UL 8750 requirements for LVLE circuits.

3.4 CIRCUIT, LIMITED POWER SOURCE (LPS) – A circuit for which the isolation and electrical output characteristics comply with CAN/CSA-C22.2 No. 60950-1 / UL 60950-1 requirements for LPS circuits.

3.5 DEVICE – A general term for a light engine. A more specific term is used if a requirement applies only to a certain type of device.

3.6 ENCLOSURE – A material or housing provided to enclose parts and components that can involve a risk of fire or electric shock.

3.7 INSULATION, BASIC – The insulation necessary to provide basic protection against the risk of electric shock. This insulation may be in the form of vulcanized fiber, an inorganic or polymeric material, or an air gap.

3.8 INSULATION, DOUBLE – An insulation system comprised of both basic insulation and supplementary insulation.

3.9 INSULATION, OPERATIONAL – Insulation that is necessary for the correct operation of the equipment but that is not relied upon for protection against electric shock.

3.10 INSULATION, REINFORCED – A single insulation system with such mechanical and electrical qualities that it, in itself, provides the same degree of protection against the risk of electric shock as does double insulation.

Note: The term "single insulation system" does not necessitate that the insulation must be in one homogeneous piece. The insulation system may comprise two or more layers that cannot be tested as supplementary or basic insulation.

3.11 INSULATION, SUPPLEMENTARY – An independent insulation provided in addition to the basic insulation to provide protection against the risk of electric shock in case of breakdown of the basic insulation.

3.12 LAMP BASE – The part of the device that engages the lampholder and makes contact with the electrical circuits of the lampholder.

3.13 LED ARRAY (LED MODULE) – An assembly of one or more LED packages or dies on a printed circuit board or substrate, possibly with optical elements and additional thermal, mechanical, and electrical interfaces that are intended to connect to the load side of an LED driver.

3.14 LED DRIVER (CONTROLGEAR) – A component comprised of a power source and control circuitry designed to operate an LED array or module. The control circuitry can range from simple (bridge rectifier and resistor) to complex (incorporating power factor control, constant voltage or constant current outputs, and the like).