

Subject 2108

February 26, 2010

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Low Voltage Lighting Systems, UL 2108, are being proposed:

- 1. Add exception to wire size for conductors in Class 2 or isolated LVLE circuits*
- 2. Revise Scope to align with other lighting standards*
- 3. Add voltage limits for additional waveforms in 3.17*
- 4. Revise flammability rating and marking requirements for recessed housings*
- 5. Revise requirements for electronic power units*
- 6. Correct references in requirements for exposed bare conductor protective devices*
- 7. Correct previous error in requirements for threaded openings for conduit*
- 8. Expand requirements for cable types for power limited cable connections*
- 9. Revise fire indicator material for abnormal tests to correlate with UL and CSA standards*
- 10. Revise marking requirements for damp and wet location luminaires*
- 11. Revise and clarify requirements for luminaires shipped separately from the power unit*
- 12. Clarify titles and scopes of Part II and Part IV*
- 13. Miscellaneous revisions*

STP BALLOTS AND COMMENTS DUE: April 12, 2010

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

- 1. Add exception to wire size for conductors in Class 2 or isolated LVLE circuits**

RATIONALE

Proposal submitted by: Michael O'Boyle, Lightolier

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Requirements have been published in the Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750, that allow Class 2 or isolated LVLE circuits wire to be of any size provided that the circuits are appropriately separated from circuits involving hazardous power levels. Smaller size wires are commonly used in LED lighting products because of the small scale of the LED components and because current levels are relatively low. Class 2 and LVLE limited power levels are not considered to present the risk of electric shock or fire.

This proposed revision will correlate the wire size requirements of UL 2108 with those of UL 8750.

PROPOSAL

15.2 Conductors shall be 18 AWG (0.82 mm²) minimum.

Exception No. 1: ~~Conductors located in a Class 2 circuit shall be 24 AWG (0.21 mm²) minimum.~~

Exception No. 2 1: Conductors of a size smaller than 18 AWG, but not smaller than 24 AWG, may be used under the following conditions:

- a) Where they are completely enclosed;*
- b) Where they are not subject to movement under normal use; and*
- c) In the secondary of a transformer, or in a circuit using solid-state devices.*

Exception No. 2: Conductors of any size are permitted when the conductors are in Class 2 or equivalent isolated low voltage, limited energy circuits only and are physically separated from all other non-Class 2 or non-isolated low voltage, limited energy circuits, such as by a barrier or reliably fixed spacing of minimum 6.4 mm (0.25 in).

2. Revise Scope to align with other lighting standards

RATIONALE

Proposal submitted by: Mike Shulman, UL

The proposed revisions to 1.2 and 1.3 align the text with the terminology used elsewhere in the standard. Because there is product scope overlap between the Standard for Low Voltage Lighting Systems, UL 2108, and the Standard for Low Voltage Landscape Lighting Systems, UL 1838, with some luminaires and power units eligible for evaluation by either standard, it is not appropriate to declare (in 1.3) that the requirements of UL 2108 do not cover luminaires also covered by UL 1838.

With the publication of the Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750, it is now appropriate to specifically refer to that document for requirements associated with LED equipment incorporated within the low voltage lighting systems covered by UL 2108.

PROPOSAL

1.2 These requirements cover:

- a) Low voltage lighting Power units and luminaires in which output is limited to 25 amperes and below the risk of electric shock voltage levels as defined in 3.17; and

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b) ~~Class 2, exposed bare conductor, and other low-voltage luminaires, exposed conductor lighting systems; and~~

c) ~~Class 2 low voltage lighting systems.~~

1.3 These requirements do not cover low-voltage lighting systems and luminaires with integral power supplies or luminaires covered by other standards such as, but not limited to, the Standard for Portable Electric Luminaires, UL 153, the Standard for Track Lighting Systems, UL 1574, or the Standard for Luminaires, UL 1598, the Standard for Low Voltage Landscape Lighting Systems, UL 1838, low voltage lighting systems that operate at over 25 amperes, or low voltage luminaires with integral power supplies.

1.4 Light emitting diode (LED) components and subassemblies integral to a low voltage luminaire or power unit covered by this standard shall comply with the applicable requirements of the Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750.

3. Add voltage limits for additional waveforms in 3.17

RATIONALE

Proposal submitted by: Mike Shulman, UL

UL 2108 is not restricted to AC units only, so the definition for risk of electric shock needs to identify the appropriate limits for other waveforms. The voltage limits proposed are directly from the National Electrical Code, Table 11(B), Class 2 and Class 3 Direct-Current Power Source Limitations. However, since UL 2108 is specifically tied to NEC Article 411 (per clause 1.1), a 30 V dc maximum (even for dry locations) is proposed. The wet location voltage limits and the content of footnotes 1 and 2 are aligned with both the NEC and with UL 1838.

While somewhat higher maximum current levels would technically be permitted in association with these other waveforms without introducing a risk of electric shock injury, UL is of the opinion that the simplicity of maintaining a 5 mA maximum threshold is more beneficial than introducing the more complex matrix of waveform vs. current parameters. UL is not aware of any non-sinusoidal power unit or luminaire designs that require a greater leakage current allowance.

PROPOSAL

3.17 RISK OF ELECTRIC SHOCK – A risk of shock exists between any two uninsulated conductive parts or between an uninsulated conductive part and earth ground, if the continuous current flow through a 1500 Ω resistor in parallel with a 0.015 μF capacitor connected between the two points exceeds a 5 mA rms (7 mA peak) and if the open circuit voltage exceeds 30 V rms (42.4 V peak) for dry and damp or 15 V rms (21.2V peak) for wet locations the following limits:

<u>Waveform Type^a</u>	<u>Maximum Voltage</u>	
	<u>Dry and Damp Locations</u>	<u>Wet Locations</u>
<u>Sinusoidal ac</u>	<u>30 V rms</u>	<u>15 V rms</u>
<u>Non-sinusoidal ac</u>	<u>42.4 V peak</u>	<u>21.2 V peak</u>
<u>Continuous dc^b</u>	<u>30 V</u>	<u>30 V</u>
<u>10 – 200 Hz interrupted dc^c</u>	<u>24.8 V</u>	<u>12.4 V</u>

^a For a combined ac + dc waveform, the wet location voltage limit shall be the non-sinusoidal ac limit where the dc voltage is no more than 10.4 V, and shall be (16.5 + 0.45Vdc) where the dc voltage is greater than 10.4 V. The dry and damp location voltage limit shall be twice these amounts.

^b If the peak-to-peak ripple voltage on a dc waveform exceeds 10% of the dc voltage, the waveform shall be considered a combined waveform per footnote a above.

^c Contact with interrupted dc at a lower or higher frequency shall be permitted only after a special investigation based on the specific waveform parameters.

4. Revise flammability rating and marking requirements for recessed housings

RATIONALE

Proposal submitted by: Mike Shulman, UL

A “recessed housing” is defined in clause 3.15 as “A part of a recessed luminaire or power unit that projects into the ceiling or wall cavity and serves to close off the opening from the room side, and does not necessarily enclose conductors or similar components.” Since this housing “..does not necessarily enclose conductors or similar components,” there is no technical basis to require it to carry a flammability rating (because there may be no source of fire for it to contain). The Standard for Luminaires, UL 1598, does not require a flammability rating for polymeric recessed housings that are not also serving as an enclosure, and actually permits openings in such housings (ref. clauses 11.4.4 and 11.4.5). If a polymeric housing is also serving as an “enclosure” (as defined in clause 3.5 of UL 2108), then the material would be required to carry a minimum 5VA flammability rating, in accordance with 9.4(b). The polymeric material should be suitable for the temperatures encountered, however.

A current-carrying part that requires an enclosure will require an enclosure whether or not it is on the room side of a recessed housing. The second sentence of clause 11.1 only confuses this issue.

The marking “Not for use in environmental air handling spaces” is permitted by UL 1598 (Table 20.1.1, item 1.39) as an alternative to the “one and two family dwellings only” marking.

PROPOSAL

11.1 A recessed product shall be constructed such that a hole in a ceiling or wall structure is closed off by the recessed housing. ~~All current-carrying parts shall be located on the room side of the housing unless they are enclosed as specified in Section 9, Enclosure.~~

11.3 A polymeric recessed housing shall have a ~~minimum flammability rating of 5 VA~~ temperature rating equal to or greater than the highest temperature measured on the part during the normal temperature test and shall be marked as specified in 48.5.7.

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48.5.7 A product with a polymeric recessed housing shall be marked ~~“For use in one and two family dwellings only,” Form C, and “Not for use in fire rated installations” in Form B3 and either “For use in one and two family dwellings only” or “Not for use in environmental air handling spaces” in Form C.~~

5. Revise requirements for electronic power units

RATIONALE

Proposal submitted by: Mike Shulman, UL

The construction and performance requirements in the Standard for Electric Sign Components, UL 879, and the newly published Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750, provide for comparable levels of safety to the other three standards already cited in clause 18.1. The requirement for primary-to-secondary isolation is addressed in clause 18.3 so it need not be also included in 18.1. Clause 18.2 is proposed to be rephrased to (1) more explicitly require compliance only with the Class 2 output performance requirements of the Standard for Class 2 Power Units, UL 1310, and (2) permit a qualifying power unit to be marked “Class 2.”

PROPOSAL

18 Electronic Power Supply

18.1 ~~The primary and secondary circuit of the power supply shall be isolated and~~ An electronic power supply of a power unit shall comply with the electrical construction and performance requirements of one of the following standards:

- a) Power Units Other Than Class 2, UL 1012;
- b) Class 2 Power Units, UL 1310; or
- c) Information Technology Equipment, UL 60950; or
- d) Electric Sign Components, UL 879; or
- e) Light Emitting Diode (LED) Equipment for Use in Lighting Products, UL 8750.

18.2 ~~A Class 2 power unit employing an electronic power supply shall comply that complies with the Class 2 applicable output performance requirements of the Standard for Class 2 Power Units, UL 1310, is permitted to be marked in accordance with 48.2.10.~~

18.3 An electronic power unit with an electronic power supply shall be provided with a means to isolate the primary from the secondary by such means as optical isolators that comply with the Standard for Optical Isolators, UL 1577, or transformers that comply with Section 17, Transformers.

48.2.10 A power unit in which output is limited to Class 2 levels in accordance with 18.2 is permitted to be marked “Class 2.”

6. Correct references in requirements for exposed bare conductor protective devices

RATIONALE

Proposal submitted by: Mike Shulman, UL

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Clause 30.1(a) makes reference to clause 19.5. An exception to 19.5 in regards to clauses 30.1 (b), (c), or (d) is not needed because none of these clauses reference 19.5 nor trigger the need for the Abnormal Operation Test of Section 38.

PROPOSAL

~~19.5 For an exposed bare conductor lighting system, A power unit having available power exceeding Class 2 limits and intended for an exposed bare conductor lighting system shall be provided with integral protection against inadvertent shorting and overloading. The effectiveness of the protection shall be evaluated by compliance comply with the Exposed Bare Conductor Abnormal Operation Test described in Section 38.~~

~~Exception: The Exposed Bare Conductor Abnormal Operation Test is not required for low-voltage exposed insulated conductor systems as described in 30.1(b), 30.1(c), or 30.1(d).~~

7. Correct previous error in requirements for threaded openings for conduit

RATIONALE

Proposal submitted by: Mike Shulman, UL

The minimum conduit thread requirements of 28.4(a) and (b) were inadvertently reversed, dating back to when these requirements were first proposed for addition to UL 2108 in June 2001. The proposal re-aligns UL 2108 with clause 6.15.2.4 in the Standard for Luminaires, UL 1598, and clause 6.10.4.4 in the Standard for Enclosures for Electrical Equipment, Non-Environmental Considerations, UL 50.

PROPOSAL

28.4 A threaded opening for conduit shall:

- a) Have no fewer than 3-1/2 or more than 5 threads when ~~not~~ tapped all the way through the opening;
- b) Have at least 5 full threads when not tapped all the way through the opening;
- c) The unthreaded part of the opening shall be smooth and well rounded for protection of the conductors; and
- d) The unthreaded throat diameter of the hole shall have an internal diameter as noted in Table 28.1.

8. Expand requirements for cable types for power limited cable connections

RATIONALE

Proposal submitted by: Mike Shulman, UL

NEC Table 725.154G identifies a number of cable types as permitted substitutes for CL2 and CL3. This proposal revises Exception No. 1 to allow such alternative cable types. Note that CL2 and CL3 are not cable "ratings," but cable types.

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PROPOSAL

29.1 A power unit shall be provided with a means of connection for each output circuit. ~~The wiring means shall be as specified in accordance with 28.1.~~

Exception No. 1: ~~In lieu of 28.1, A Class 2 power unit is permitted to provide a means for of connection to suitable for power limited cable rated at least such as CL2 or CL3 or equivalent.~~

Exception No. 2: The wiring means for a power unit intended for an exposed bare or an insulated conductor system shall comply with Section 30.

9. Revise fire indicator material for abnormal tests to correlate with UL and CSA standards

RATIONALE

Proposal submitted by: Mike Shulman, UL

UL 2108 currently specifies untreated surgical cotton as the fire indicator for certain abnormal tests. However, the more commonly used material for this application is cotton cheesecloth, which UL 2108 specifies for the component fault tests (section 39). The cheesecloth specification of 39.7 is proposed to shift to the "general" portion of the Performance section of the standard, so it applies equally to all of the involved abnormal tests. A minor correction in the thread count specification is also proposed (fully aligning the specification with that of UL 1012, Standard for Power Units other than Class 2). Test results using this cheesecloth specification are expected to be comparable to those attained using the specified surgical cotton.

Note that deletion of the phrase in 39.7 about loosely draping the cheesecloth over the unit is immaterial because the same phrase appears separately in clause 39.5.

NOTE: This proposal involves a revised test requirement. The proposal author has indicated that an assessment of repeatability and reproducibility (R&R) has not been conducted, and was considered not necessary for the following reasons:

The proposed material (cheesecloth) is the more commonly used fire indicator for comparable/identical tests in most other UL standards. It has a well-established track record for this application. The specifications provided for the cheesecloth are industry standard and used by UL and other test agencies. The currently specified material (surgical cotton) is not precisely specified and is more commonly used as a flammability rating variable (i.e., V2 vs. V1) rather than as an attribute measure (pass/fail) for containment of fire.

The change would bring the identified test methods into greater alignment with similar well-established test methods for similar products. A gauge study is not necessary to acknowledge that this change is a step in a positive direction towards reducing overall test variability.

PROPOSAL

32.5 Where cheesecloth is specified as a fire indicator, it shall be untreated cotton cloth running 14 – 15 yd²/lb (26 – 28 m²/kg) and for any square inch, a count of 32 threads in one direction and 28 in the other direction.

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36.2 The power unit is to be mounted in accordance with the manufacturer's instructions and on a test surface or in a test box as specified in 34.4 as applicable. A thin layer of ~~untreated surgical cotton cheesecloth~~ is to be placed around the power unit. The rated load plus 15 percent of the rated secondary wattage is to be connected to the unit.

Exception: A recessed mounted power unit marked "Type IC Recessed" shall be installed in a test box filled with 8-1/2 inches (21.6 cm) insulation instead of the cotton.

38.8 If test condition of 38.6(c) occurs, the test conditions in 38.3 shall be repeated with a thin layer of ~~untreated surgical cotton~~ cheesecloth draped over the test wire. Each test condition of 38.3 shall be conducted three times, each with a new test shorting wire. If the protective device does not de-energize the power unit or the test shorting wire does not melt through within 1 minute, the test shall be terminated after 1 minute for each test condition.

~~39.7 The cloth used in the abnormal test is to be bleached cheesecloth, 36 inches (914 mm) wide, running 14 – 15 square yards per pound (26 – 28 m²/kg) and having what is known in the trade as a count of 32 by 28; that is, for any square inch 32 threads in one direction and 11 in the other direction). The cloth is to be loosely draped over the unit being tested in order to serve as a flame indicator (presence of ash or burnt holes), not as a blanket to trap heat.~~

10. Revise marking requirements for damp and wet location luminaires

RATIONALE

Proposal submitted by: Mike Shulman, UL

This proposal includes an editorial revision to better align the allowance for a wet location marking with the risk of electric shock voltage limits of clause 3.17, and to recognize that the current "exception" is an equally acceptable alternative compliance path. Additionally, for a luminaire that has not been subject to the wet location testing of UL 1598 (to verify that water is excluded from contacting any live parts that represent a risk of electric shock), both the input rating and the operating voltage of the luminaire must be considered.

The proposal also includes specific allowances for damp location luminaires. This criteria exists for Power Units, in part I of the standard, but part II (class 2 luminaires) is silent on this issue.

The allowance for damp and wet location marking should be equally extended to non-class 2 luminaires, so the proposal includes parallel additions to Part IV (clauses 80.10 and 80.11). Section 84 then becomes redundant and can be eliminated. Note, however, that the Dielectric Withstand Test waiver within clause 84.1 would also be eliminated. This waiver does not exist for class 2 luminaires operating at beyond the wet location electric shock limit threshold, and should not exist for non-class 2 luminaires operating at similar voltages.

PROPOSAL

~~51.3 The maximum rating of a luminaire shall not exceed 15 V rms for sinusoidal ac, 21.2 V peak for non-sinusoidal ac, and 30 V dc if marked for wet locations in accordance with 48.1.8.~~

~~Exception: Class 2 luminaires rated 30 V rms for sinusoidal ac and 42.4 V peak for non-sinusoidal ac maximum are usable providing that:~~

- ~~a) There is no accessible uninsulated current-carrying parts exceeding 15 V rms for sinusoidal ac and 21.2 V peak for non-sinusoidal ac; and~~

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b) The luminaires comply with the additional wet location construction and performance requirements of the Standard for Luminaires, UL 1598.

51.3 A luminaire is permitted to be marked in accordance with 63.1.5 if it either:

- a) Complies with the wet location construction and performance requirements of the Standard for Luminaires, UL 1598; or
- b) Both the input and operating voltage do not exceed the limits for risk of shock, per 3.17, under wet conditions.

63.1.5 A luminaire that complies with 51.3 is permitted to be marked "Suitable for Wet Locations." Form C.

63.1.6 A luminaire that complies with the damp location requirements of the Standard for Luminaires, UL 1598, is permitted to be marked "Suitable for Damp Locations." Form C.

80.10 A luminaire that complies with the damp location requirements of the Standard for Luminaires, UL 1598, is permitted to be marked "Suitable for Damp Locations." Form C.

80.11 A luminaire is permitted to be marked "Suitable for Wet Locations." if it either:

- a) Complies with the wet location construction and performance requirements of the Standard for Luminaires, UL 1598; or
- b) Both the input and operating voltage do not exceed the limits for risk of shock, per 3.17, under wet conditions.

84 Damp and Wet Location Luminaires

~~84.1 The low voltage damp and wet location luminaire shall comply with following referenced sections of the Standard for Luminaires, UL 1598, as applicable:~~

Requirement	UL 1598 Section
General	13.1
Damp and wet location luminaires	13.2
Damp location luminaires	13.3
Wet location luminaires	13.4 (except the Dielectric Withstand Test is not performed as part of the tests in 13.4.8)

~~84.2 These requirements are supplemental to other applicable Part 4 requirements.~~

11. Revise and clarify requirements for luminaires shipped separately from the power unit

RATIONALE

Proposal submitted by: Mike Shulman, UL

Clause 63.3.2 requires a Class 2 luminaire to be marked for use with a specific power unit or with its voltage and wattage (or current) rating. None of the testing or compliance criteria for a Class 2 luminaire is dependent on the specific power unit employed, so there is no reason to constrain the luminaire to a specific power unit manufacturer/model number. The (lamp) wattage marking is already required by 63.1.2.

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The input voltage should be marked on all luminaires, Class 2 or non-Class 2, as proposed in new clause 63.1.1.1. Marking of the manufacturer's name and model number are already required, per 48.1.4, but this requirement is poorly located under the power unit marking section (see also Topic 13 where 48.1.4 is proposed to be deleted). Marking the luminaire with an input voltage is necessary in case the power unit needs to be replaced. The likelihood that the power unit may need to be replaced over the lifetime of the luminaire is also cause to upgrade the marking requirement of 63.3.2 from Form B3 (temporary) to A3 (permanent).

The "marking" of 64.1 is actually an instruction sheet (Form C), with other editorial revisions proposed here to eliminate the need for a verbatim statement. Since the luminaires at issue in this clause are not restricted to Class 2, identification of the specifically mated power unit remains appropriate.

The reference in clause 80.1 (non-Class 2 luminaires) to the markings in section 48.1 (power units) is not appropriate. Referencing instead the markings in section 63.1 and section 64 pulls in clauses 48.1.1 – 48.1.3 (marking forms and types), per clause 63.1.1, and allows elimination of clauses 80.3 – 80.6 which are exact replicas of clauses 63.1.2 – 63.1.4 and 64.2, respectively. The other markings within section 48.1 are relevant only to power units.

PROPOSAL

63.1.1.1 A luminaire shall be marked in Form A1 with the manufacturer's name or trademark, catalog or model number, and input voltage.

63.3.2 A luminaire intended for connection to a Class 2 power unit that is shipped separately shall be marked in Form A3 "Use only with Class 2 power unit." This marking is permitted to also specify a power unit manufacturer and model number or power unit electrical rating at the discretion of the manufacturer.

a) ~~Marked in Form B3 "Use only with _____ Class 2 power unit" or the equivalent where the blanks identify the specific manufacturer and designation, or electrical rating – voltage and wattage or current; and~~

b) ~~Provided with installation instructions that caution the user against installing the luminaire with other than the intended Class 2 power unit.~~

~~64.1 A luminaire shipped separately from the power unit shall be marked "For use with _____ power unit," where the blank spaces are to be filled in with the provided with instructions, in Form C, identifying the intended power unit by manufacturer's name and series designation. Form C.~~

~~*Exception: These instructions are not required for a luminaire intended for connection to a Class 2 power unit and marked per 63.3.2.*~~

~~80.1 In addition to the requirements specified in this section, luminaires shall also comply with the general marking requirements in 48.1.1 – 48.1.9 63.1 and Instructions, Section 64.~~

~~80.3 The lamp wattage shall be marked at a point where visible during relamping with "CAUTION – Risk of Fire" and "Max ___ watt" (type) or "Max ___ W" (type), or equivalent. The lamp wattage shall be in the blank space and the lamp type indicated (for example, "Max 50 W MR16") in the marking. Form A2:~~

~~*Exception No. 1: When the lamp (bulb) does not have a marked wattage rating, the lamp trade number designation shall be substituted.*~~

~~*Exception No. 2: Where the full marking cannot be accommodated because of the luminaries small physical size, the following marking shall be permitted:*~~

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a) *"CAUTION—Risk of Fire—do not exceed wattage listed on luminaire"; shall be placed on system components visible during relamping; and*

b) *"Max ___ watt" (type) or "Max ___ W" (type), or equivalent on the luminaire.*

80.4 A luminaire with a tungsten-halogen lamp that does not require a lamp containment barrier shall have the relamping marking in 80.3 include the word "SHIELDED" and be provided with instruction in Form C that include the following statement: "CAUTION" and the following or the equivalent, "To reduce the risk of fire do not use a lamp identified for use in enclosed luminaires."

80.5 A tungsten-halogen low voltage lighting luminaire shall be provided with the safety instructions specified in 64.2 in Form C.

80.6 A luminaire intended for non-halogen lamps for which similar shaped and rated halogen (or xenon) lamps are available, shall be provided with instructions in Form C that include the statement "Warning—Risk of Fire and Burns. Do not use halogen (or xenon) type lamps with this product," when similar shaped and rated halogen (or xenon) lamps are available.

80.8 A recessed luminaire shall be marked with a lamp replacement marking which is visible during relamping for all trims, with the information as specified in 80.3. Form A2.

Exception: A lamp replacement marking is not prohibited from being located behind the trim when the luminaire is marked "See other side of trim for relamping instructions." Form A2.

80.8 The lamp replacement marking for a recessed luminaire is permitted to be located behind the trim when the luminaire is marked "See other side of trim for relamping instructions" in Form A2.

12. Clarify titles and scopes of Part II and Part IV

RATIONALE

Proposal submitted by: Mike Shulman, UL

The proposed revisions to the title and opening clause of Part II and Part IV are only editorial in nature, to simplify and clarify the scope of each part.

PROPOSAL

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PART II – LUMINAIRES, EXPOSED BARE CONDUCTORS LUMINAIRES AND CLASS 2 LUMINAIRES**51 General**

51.1 These requirements apply to the luminaires intended to be supplied by low voltage exposed bare conductors and Class 2 to luminaires for attachment to said exposed conductors, used with power units covered in Part 1 intended to be supplied by a Class 2 power unit.

PART IV – OTHER LUMINAIRES, OTHER THAN EXPOSED BARE CONDUCTOR OR CLASS 2 LIMITS**76 General**

76.1 These requirements apply to low voltage luminaires ~~used with power units covered in Part 1 that are not intended for use in~~ with exposed bare conductors lighting systems and or where the power unit output exceeds Class 2 limits.

13. Miscellaneous revisions**RATIONALE**

Proposal submitted by: Mike Shulman, UL

Miscellaneous corrections and other typographical errors are being proposed to be revised as necessary throughout the standard.

19.4, 19.6 – Adds reference to the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1 as an alternative standard to the Standard for Electrical Temperature-Indicating and -Regulating Equipment, UL 873.

28.1.1 – Corrects an incorrect term in item (d).

30.1 – Please see rationale for 49.4 below.

31.5 – Corrects the reference from Section 43 to Section 43A.

34.4.5 – The content of this section was previously deleted.

48.1.4 – For power units, the requirement is covered by 48.2.1. For luminaires, new proposed clause 63.1.1.1 (please refer to Topic 11) covers these markings. Therefore, this paragraph is being deleted.

49.4 – The qualifying statement [currently part of item (d) and proposed here to be shifted to item (h)] as to when this requirement applies is not actually part of the Important Safety Instructions. The brackets prior to this item are intended to signify this.

PROPOSAL

19.4 An automatic reset protective device shall comply with the 6,000 Cycle Endurance Test in the Standard for Electrical Temperature-Indicating and -Regulating Equipment, UL 873, or shall be rated for 6,000 cycles in accordance with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1.

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