

## STANDARD INFORMATION

**Standard:** UL 924

**Standard ID:** Emergency Lighting and Power Equipment [UL 924:2016 Ed.10+R:14Dec2022]

**Previous Standard ID:** Standard for Emergency Lighting and Power Equipment [UL 924:2016 Ed.10+R:05May2020]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **December 14, 2024**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

**Overview of Changes:** Charging circuitry and battery management system for lithium batteries. Specific details of new/ revised requirements are found in table below.

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined-out</del> below.</i>
22	Info	<b>Batteries</b> <i><b>New clause added;</b></i>
22.2.3		The charging circuitry for lithium batteries shall comply with the Lithium Battery Charge Rate Measurement Test, Section 48A, and the Lithium Battery Charging Circuit Abnormal Test, Section 48B.
33	Info	<b>Impedance Networks</b>
33.1		Battery-charging circuits provided by an impedance network shall provide the same level of output under reverse polarity input, unless means that are not easily defeated are provided to prevent reverse polarity input. <u>Where needed, compliance is verified using the method of Section 48A.</u>
48A		<i><b>New section added;</b></i> <b>Lithium Battery Charge Rate Measurement</b>
48A.1		The battery(ies) shall be installed in the equipment and fully discharged by any convenient means. The charging cycle shall then be initiated. Current flow from the charging circuit into the battery shall be monitored during the charge cycle to determine the maximum rate. The test shall be continued only until it is clear that the rate of charging is steady or decreasing, but not less than 3 hours. The maximum rate shall not exceed the battery manufacturer's recommendation.
48B		<i><b>New section added;</b></i> <b>Lithium Battery Charging Circuit Abnormal Tests</b>
		The tests of 48B.2 and 48B.3 shall not result in any of the following:  a) Chemical leaks caused by cracking, rupturing or bursting of the battery jacket; b) Spillage of liquid from any pressure relief device in the battery; c) Explosion of the battery; or d) Emission of flame or expulsion of molten material outside of the luminaire enclosure.
48B.1		The measured charging voltage shall not exceed the manufacturer's recommended maximum for the battery or cells, and the current shall not exceed three times the manufacturer's recommendation for the battery or cells. For equipment otherwise required to comply with the Dielectric Voltage-Withstand Test (Section 56), that test shall be repeated after this test program. If the equipment becomes inoperable as a result of a test, a new sample may be used to continue the test program.



CLAUSE	VERDICT	COMMENT
48B.2		<p>Single fault conditions that may increase the charging voltage or current shall be imposed, one at a time, on components within the charging circuitry. A fully discharged battery(ies) shall be charged under these conditions for 7 hours. The test may be discontinued prior to 7 hours if temperatures on the battery reach and remain at ambient (<math>\pm 2</math> C) for no less than 30 minutes.</p> <p>Exception: Components whose reliability against fault conditions has been demonstrated through compliance with applicable requirements, such as those of UL 60730-1, are not subject to the fault conditions of 48B.2.</p>
48B.3		<p>Single fault conditions that may permit reverse charging within a multi-cell battery shall be imposed, one at a time, on components within the charging circuitry that are not known to be reliable. Component faults shall be chosen to cause the highest reverse charging current. A fully discharged battery shall be charged under these conditions for 7 hours. The test may be discontinued prior to 7 hours if temperatures on the battery reach and remain at ambient (<math>\pm 2</math> C) for no less than 30 minutes.</p> <p>NOTE: Where equipment includes multiple identical multi-cell batteries, this fault condition test is only required to be performed on a single battery.</p>
52	Info	<b>Temperature Test</b> <i>New clause added;</i>
52.11.1		<p>An integral or separate battery management system that de-activates lithium battery charging during this test is permitted to remain operable when shown to comply with the safety-related electronic circuit (SREC) requirements of UL 8750 Supplement SA, or a comparable reliability program. A battery management system not known to comply with the UL 8750 SREC (or comparable) requirements is to be bypassed when determining compliance with 52.11.</p>