

STANDARD INFORMATION

Standard: UL 1480 / ULC 541

Standard ID:

Speakers for Fire Alarm and Signaling Systems, Including Accessories [UL 1480:2023 Ed.7]
Standard for Speakers for Fire Alarm and Signaling Systems, Including Accessories
[CAN/ULC 541:2023 Ed.5]

Previous Standard ID:

Speakers for Fire Alarm and Signaling Systems, Including Accessories [UL 1480:2016
Ed.6+R:07Sep2017]
Standard for Speakers for Fire Alarm and Signaling Systems, Including Accessories [CAN/ULC
S541:2016 Ed.4+R1]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **November 27, 2027**

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 Reports not updated to this version by the effective date above will be withdrawn.

Existing listings to UL 1480:2003 Ed.5+R:17Oct2012 and/or CAN/ULC S541:2007 Ed.3 are exempt from this update unless a change is made to the product.

Overview of Changes:

- Changes to the output pressure and sound requirements that harmonize the minimum sound level requirements at 75 dBA
- Audibility test to specify the use of reverberant sound power
- New construction and performance requirements for battery-powered units
- Addition of requirements for the evaluation of reduced spacings on printed-wiring
- New Requirements for Radio (Wireless) Systems
- Addition of new firmware requirements
- Revisions to the gasket requirements for outdoor use products
- Revisions to the ultraviolet light and water exposure test for outdoor use products
- Revision to the Accelerated Air-Oven Aging Test for outdoor use products
- Updated spacing requirements

Specific details of new/revise 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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 lined-out below.</i>
9	Info	Enclosures <i>New section added;</i> Gaskets 9.7 A gasket used to seal an opening between two parts that are intended to be separated in the field for installation or maintenance shall comply with: See standard for details.
9.8		<i>New section added;</i> Covers An enclosure cover shall be secured against opening or removal by means requiring the use of a common or special tool. See standard for details.
14	Info	Electrical Components
14.1	Info	Mounting <i>New clause added;</i> 14.1.5 A plunger contact, diaphragm assembly, or other part intended to be non-moving while supporting components shall be mounted in position and prevented from loosening or turning by means other than friction between surfaces.
14.12		<i>New section added;</i> Batteries A battery or batteries used as primary or backup power shall comply with the applicable requirements in” See standard for details.



CLAUSE	VERDICT	COMMENT
		<i>New section added;</i>
		Firmware Update (If Provided)
16		A firmware release level shall identify the firmware of a product. A new release level shall be assigned due to any changes in the firmware. See standard for details.
20	Info	Frequency Response and Output Sound Pressure Level
20.2	Info	Output sound pressure level – determination of rating
		A speaker shall produce a sound pressure output not less than its marked rated sound pressure level for one of the following modes of intended use specified below. <u>a) In Canada only: a speaker shall have a at least one wattage tap with a sound level of not less than 75 dBA at 3.05 m (10 ft). When a device has multiple tone or volume settings, at least one tone or volume setting shall produce a minimum of 75 dBA.</u> <u>b) In the United States only:</u> <u>1) A speaker intended for use in the Public Mode shall have at least one wattage tap with a sound level of not less than 75 dBA at 3.05 m (10 ft). When a device has multiple tone or volume settings, at least one tone or volume setting shall produce a minimum of 75 dBA; and</u> <u>2) A speaker intended for use in the Private Mode shall have at least one wattage tap with a sound level of not less than 45 dBA at 3.05 m (10 ft). When a device has multiple tone or volume settings, at least one tone or volume setting shall produce a minimum of 45 dBA.</u>
20.2.1		
		The sound level is to be determined from the measured sound power in 20.2.2.
		<i>New section added;</i>
		Determination of sound reduction
20.3		The sound level of speaker shall not be reduced by more than 3 dB after being subjected to the tests listed in: See standard for details.
23	Info	Dielectric Voltage-Withstand
		<i>new clause added;</i>
23.6		If an autotransformer is in the circuit, the primary of the transformer is to be disconnected and an AC test potential in accordance with 23.1(c) is to be applied directly to all wiring involving more than 250 V.



CLAUSE	VERDICT	COMMENT
		<i>New section added;</i>
		Evaluation of Reduced Spacings on Printed-Wiring Boards
24		In accordance with the Exception of 15.1, printed-wiring board traces of different potential having reduced spacings shall comply with: See standard for details.
26	Info	Variable Ambient Temperature
26.1	Info	General
		As a result of the exposure to 26.2, Effect of Shipping and Storage Temperature, 26.3, High and Low Ambient Temperature, and Section 27, Humidity:
26.1.1		a) Speakers shall not present a risk of shock; b) The speaker output sound pressure level shall not be reduced more than 3 dB from the sound output pressure level prior to the variable ambient test; and c) <u>A wireless notification appliance shall send and receive alarm and trouble signals while in 26.3, High and Low Ambient Temperature, and 28.1.6, Humidity. The trouble signal must individually identify the affected device as required in Section 6, Control Unit Interface.</u>
28	Info	Abnormal Operation and Burnout
28.2	Info	Components test
		<i>New clause added;</i>
28.2.4		Compliance of the speaker transducer shall be determined with the DC Overload Abnormal Test requirements in CTA-CEB 19. There shall be no ignition of the cheesecloth.
28.3	Info	Speakers with multiple input voltages
		<i>New clause added;</i>
28.3.1		Speakers with multiple input voltages shall withstand the misapplication of a higher voltage on a lower voltage tap without risk of fire or shock.
		<i>New clause added;</i>
28.3.2		To determine compliance with 28.3.1, the speaker is to be mounted as described in 28.1.2 – 28.1.5. For each input voltage, the highest voltage rating shall be applied to each of the other lower voltage taps. The signal applied shall be band limited pink noise as described in 18.12. When supplied with multiple output wattage taps, the maximum wattage tap shall be selected.



CLAUSE	VERDICT	COMMENT
33	Info	Corrosion Tests
33.1	Info	General
		Following exposure to the environment, the sample shall be allowed to stabilize to room conditions and then shall comply with the following:
33.1.3		a) Section 23, Dielectric Voltage-Withstand; b) The speaker output sound pressure level shall not be reduced more than 3 dB from the output sound pressure level prior to the exposure of 33.1.1; and <u>c) A wireless notification appliance shall not be reduced in performance when tested in accordance with 50.3 (wireless systems) following each exposure.</u>
33.3	Info	Sulphur dioxide – carbon dioxide
		<i>New clause added;</i>
33.3.3		For an outdoor-use speaker, two samples are to be exposed to a moist carbon dioxide-sulphur dioxide-air mixture in a closed glass chamber as described in 33.3.1. The sulphur dioxide and carbon dioxide are to be supplied to the test chamber from commercial cylinders containing these gases under pressure. On the first through fourth, and seventh through tenth days, an amount of carbon dioxide equivalent to 1.0 % of the volume of the chamber, plus an amount of sulphur dioxide equivalent to 1.0 % of the volume of the chamber, is to be introduced. On the fifth and sixth day of the exposure period, the chamber is to remain closed and no purging or introduction of gas is to be conducted. A small amount of water (10 ml/0.003 m ³ of chamber volume) is to be maintained at the bottom of the chamber for humidity.
		<i>New section added;</i>
		Polarity Reversal
35		A speaker with a circuit intended to be connected in a specific polarity, such as a battery, shall operate as intended after being connected to each polarity of the supply source at the voltage indicated.
		See standard for details.



CLAUSE	VERDICT	COMMENT
37	Info	Tests on Polymeric (Plastic) Materials
37.2	Info	Air-oven aging test (temperature)
37.2.2		<p>At least three representative samples shall be mounted on supports in an air circulating oven maintained at 90 ± 2 °C (194 °F) for 7 d or at 70 ± 2 °C (158 °F) for 28 d. Following the aging period, the sample shall then be removed from the oven and permitted to cool to room temperature before being examined as described in 9.6.7 for any distortion which exposes high-voltage uninsulated current carrying parts. Falling off of the sample's cover shall be permitted only when parts operating at a potential greater than 30 Vac or 42.4 Vdc are not exposed, operation is not affected, and the cover can be replaced as intended. <u>Gaskets on samples intended for outdoor use shall be visually examined for evidence of deterioration such as cracking, shrinkage, distortion, or similar deterioration to an extent that it affects the integrity of the seal. If visual evidence exists, a sample shall be subjected to Section 34, Water Spray Test following the sound level measurements in 20.2.</u> Where the conditioning process has damaged electronic components, it is permissible to replace them.</p>
		<i>New section added;</i>
		Ultraviolet light and water exposure test
37.5		<p>The polymeric enclosure of a high-voltage speaker intended for outdoor use shall not show visible signs of deterioration, such as crazing, cracking, or dimensional change after being subjected to the Ultraviolet Light Exposure Test and Water Exposure and Immersion Test in accordance with the following standards:</p> <p>See standard for details.</p>
38	Info	Mechanical Strength Tests for Enclosures
		<i>New clause added;</i>
38.4		<p>When the speaker is intended for indoor use, the impacts specified in 38.3 are to be conducted at room temperature. When the device is intended for outdoor use, the impacts are to be conducted after the units have been conditioned at -40 °C (-40 °F) for 3 h.</p>
		<i>New section added;</i>
		Battery-Powered Units
42		<p>A notification appliance that uses a battery as the main source of supply shall be capable of producing an alarm signal for at least 5 min at the battery voltage at which a trouble signal is obtained, followed by a minimum of 7 days of trouble signal indication.</p> <p>See standard for details.</p>



CLAUSE	VERDICT	COMMENT
	Info	Markings <i>Section 46 has been completely re-written</i>
46		General See standard for details. <i>New section added;</i>
		Marking Permanence
47		Markings affixed to a speaker shall be sufficiently durable as to resist the deleterious effects of handling, cleaning agents, and the like, expected in the intended use. See standard for details.
	Info	INSTRUCTIONS <i>New section added;</i>
		Manufacturer's Published Instructions
48		Speakers packaged individually shall include installation instructions and drawings as specified in: See standard for details. <i>New section added;</i>
		Requirements for Wireless Systems
50		If wireless transmission is used between a speaker and a fire alarm control unit or a notification appliance extender, it shall be installed in compliance with the requirements outlined in: See standard for details. <i>New section added;</i>
		Requirements for Dwelling Unit Speakers (Canada Only)
51		Unless otherwise stated, the requirements of this section are in addition to the other requirements of this Standard. See standard for details.