

STANDARD INFORMATION

Standard: UL 464 / ULC 525

Standard ID:

Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories [UL 464:2023 Ed.11]

Audible Signal Devices for Fire Alarm and Signaling Systems, Including Accessories [ULC 525:2023 Ed.5]

Previous Standard ID:

Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories [UL 464:2016 Ed.10+R:05Sep2017]

Audible Signal Devices for Fire Alarm and Signaling Systems, Including Accessories [ULC 525:2016 Ed.4]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **October 22, 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 Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes:

- changes to the output pressure and sound requirements that harmonize the minimum sound level requirements at 75 dBA,
- New construction and performance requirements for battery-powered units, including primary batteries, secondary batteries used for stand-by power, and rechargeable lithium-ion batteries
- Addition of requirements for the evaluation of reduced spacings on printed-wiring boards to be consistent with requirements for initiating devices
- New Requirements for Wireless Systems
- Updated spacing requirements that are consistent with current initiating device standards
- Revisions to the Accelerated Air-Oven Aging Test for outdoor use products
- Revisions to the ultraviolet light and water exposure test for outdoor products
- Revisions to the gasket requirements for outdoor use products
- Addition of new firmware requirements

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 lined-out below.</i>
		<i>New section added;</i>
		Audible Signal Pattern
7		Devices used for fire alarm signals whose signal format is not controlled by a control unit shall be capable of reproducing a 3 pulse signal temporal pattern conforming with: See standard for details.
9	Info	Enclosures
9.5	Info	Outdoor use enclosures
		The enclosure of an audible signaling device intended for outdoor use shall incorporate the following:
9.5.1		a) Means for mounting designed to prevent water spray from entering the enclosure. See Section 34, Water Spray Test; b) <u>Holes for conduit that shall be threaded unless they are located below the lowest termination point or other live part within the enclosure. If knockouts or unthreaded holes are provided, there shall be provision for drainage of the enclosure.</u>
		<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.
		<i>New section added;</i>
		Covers
9.8		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.



CLAUSE	VERDICT	COMMENT
14	Info	Electrical Components
		<i>New section added;</i>
14.12		Batteries A battery or batteries used as primary or backup power shall comply with: See standard for details.
		<i>New section added;</i>
16		Firmware Update (if provided) 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	Output Sound Pressure Level
20.1	Info	Determination of rating An audible signaling device while operating under the rated voltage values shown in Table 12.1 shall provide the following minimum sound levels: a) In the United States only: 1) A device intended for operation in the Public Mode shall have a sound level of not less than 75 dBA at 3.05 m (10 ft). <u>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> 2) A device intended for operation in the Private Mode shall have a sound level of not less than 45 dBA at 3.05 m (10 ft). <u>When a device has multiple tone or volume settings, at least one tone or volume setting shall produce a minimum of 45 dBA.</u> b) In Canada only: A device shall have a sound output level of not less than 75 dBA at 3.05 m (10 ft). <u>When a device has multiple tone or volume settings, at least one tone or volume setting shall produce a minimum of 75 dBA.</u>
20.1.1		
20.2	Info	Determination of sound reduction
20.2.2		The sound pressure level is to be measured at a distance of 0.305 m (1 ft) from a device that is energized from a nominal rated voltage source of supply. <u>Sound pressure level measurements shall be made with a sound level meter or equivalent calibrated measuring system meeting the requirements of IEC 61672-1. The measurement shall be expressed in decibels A-weighted (dBA) referred to 20 μPa.</u> The measurement is to be made with the device in a room temperature ambient of <u>not more than 25 °C (77 °F),</u> and then immediately after each of the test conditions listed in Table 20.1.



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
20.2.3		Unless otherwise specified, audible signaling devices shall be tested in an environment where there are no reflective surfaces within the frequency region of interest, such as a free field, semi-anechoic or anechoic chamber. The audible signaling device shall be mounted as intended, on a plywood panel 1 m ² (10-3/4 ft ²) and 19 mm (3/4 in) thick. The center of the audible signaling device shall be approximately centered between the floor and the ceiling of the chamber.
		<i>New clause added;</i>
20.2.4		It is not prohibited from making the before and after measurements in an anechoic or semianechoic room at a distance of 3.05 m (10 ft) on axis or in a reverberation room in accordance with 20.1.2.
		<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 Test
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) Audible signaling devices shall not present a risk of shock; b) The audible signaling devices' 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 <u>c) A wireless notification appliance shall send and receive alarm and trouble signals while in 26.3, High and Low Ambient Temperature, and Section 27, 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 Test
28.1	Info	General
28.1.2		The devices under test shall be mounted as in normal service and oriented so as to represent the worst case with respect to the emission of glowing particles, flame or molten metal. <u>Five layers of bleached cheesecloth, having an area of 26 to 28 m²/kg (14 – 15 square yards to the pound) and a count of 32 by 28, are to be located as close as possible below the sample under test.</u>



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
28.1.3		Additionally, all openings of the unit enclosure are to be covered with a single layer of bleached cheesecloth as described in 28.1.2.
		<i>New clause added;</i>
28.1.4		For each of the test conditions described in following sections, the test voltage is to be applied and maintained until constant device temperature is attained, or until burnout, or until a catastrophic failure occurs. During the test, exposed dead metal parts of the appliance are to be connected to ground through a 15-ampere fuse.
		<i>New clause added;</i>
28.1.5		When the unit provides for selection of several operating modes, during this test the unit shall be set for the operation mode that normally would require the maximum current consumption.
		<i>New clause added;</i>
28.1.6		In the case where a device under test employs interchangeable-type fuses, for the purpose of this test these fuses are to be replaced with a fuse of the size fitting the fuseholder but having the highest available current rating.
28.2	Info	Abnormal supply line
		<i>New clause added;</i>
28.2.1		An audible signaling device shall not present a fire hazard or an electrical shock hazard as a consequence of the application of an abnormal supply.
28.3	Info	Abnormal duty cycle
		<i>New clause added;</i>
28.3.1		An audible signaling device intended to produce a single-stroke signal or intended only for intermittent duty shall withstand continuous energization at maximum rated voltage without the emission of flame or molten metal from
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 audible signaling device 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. <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>



CLAUSE	VERDICT	COMMENT
35	Info	Polarity Reversal <i>New clause added;</i> The test shall not: 35.2 a) Cause unintended operation; b) Inhibit intended operation; c) Damage any part; and d) Adversely affect subsequent normal operation.
37	Info	Polymeric (Plastic) Materials Tests
37.2	Info	Air-oven aging test (temperature) 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 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, Determination of sound reduction.</u> Where the conditioning process has damaged electronic components, it is permissible to replace them.
37.2.2		<i>New section added;</i> Ultraviolet light and water exposure test The polymeric enclosure of a high-voltage audible signaling device 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: See standard for details.
37.5		
38	Info	Mechanical Strength Tests for Enclosures <i>New clause added;</i>
38.4		When the audible signaling device 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 minus 40 °C (minus 40 °F) for 3 h.



CLAUSE	VERDICT	COMMENT
		<i>New section added;</i>
		Battery-Powered Units
42		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. See standard for details.
	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 an audible signaling device 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		Audible signaling devices packaged individually shall include manufacturer's published instructions and drawings as specified in: See standard for details.



CLAUSE	VERDICT	COMMENT
	Info	SPECIALIZED REQUIREMENTS/APPLICATIONS
49	Info	Requirements for Protective Covers and Accessories for Audible Signaling Devices
49.4	Info	Markings
		Markings shall include the following, as applicable:
49.4.2		a) Manufacturer's name or trademark; b) Model number or equivalent; c) Minimum and maximum electrical rating in volts, amperes or watts, and frequency for each circuit; <u>d) The correct position for mounting the device, if it must be mounted in a definite position to function properly. This marking shall not be required when the mounting position is obvious; and</u> <u>e) Installation-wiring terminals indicating the connections unless the proper wiring connections are plainly evident.</u>
		<i>New section added;</i>
		Performance Tests
49.5		Protective covers and accessories for use with audible signaling devices are to be subjected to the requirements of the Performance Tests: See standard for details.
		<i>New section added;</i>
		Requirements for Wireless Systems
50		Wireless transmission is used between notification appliances 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>
51		In Canada Only: Requirements for Dwelling Unit Audible Signaling Devices See standard for details.