

## STANDARD INFORMATION

**AMENDMENT 3:** The purpose of this Amendment is to extend the EFFECTIVE DATE to December 31, 2021. This SUN (with the new ED) replaces the SUN issued March 29, 2019.

**AMENDMENT 2:** The purpose of this Amendment is to extend the EFFECTIVE DATE to May 29, 2020. This SUN (with the new ED) replaces the SUN issued November 18, 2015.

**AMENDMENT 1:** The purpose of this Amendment is to extend the EFFECTIVE DATE to JANUARY 1, 2018. This SUN (with the new ED) replaces the SUN issued February 13, 2015.

**Standard Number:** ULC S531

**Standard Name:** Standard for Smoke Alarms

**Standard Edition and Issue Date:** 3rd Edition Dated February 2014

**Date of Revision:** February 2014

**Date of Previous Revision of Standard:** 2nd Edition Revised February 2011

This new and revised timing is wholly in alignment with the industry consensus of the scope accredited Nationally Recognized Testing Laboratories [NRTLs]. This alignment was extended to allow smoke alarm manufacturers to design, develop and certify products to the new and revised requirements for Canada under ULC S531 3<sup>rd</sup> Edition and the United States under UL 217 8<sup>th</sup> Edition simultaneously.

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** ~~January 5, 2016~~ ~~January 1, 2018~~ ~~May 29, 2020~~ **December 31, 2021**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** A review of all Listing Reports is necessary to determine which products comply with new/revised requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

**Overview of Changes:** ULC S531 3rd edition provides for improved Smoke Alarms by way of updated Testing requirements including requirements specific to Multi-Criteria Smoke Alarms which include supplemental functions such as CO gas detection and unique alerting capabilities. Further changes in this Edition include requirements specific to the gas sensor, Sensitivity & Velocity-sensitivity tests and In-Service Reliability testing.



This edition of the Standard introduces new areas such as Automatic Drift Compensation for Smoke Sensing comprising compensation parameters & requirements, alerting methods and sensitivity requirements. Also, there are provisions for Smoke Alarms to indicate end of life with unique signaling requirement and Reliability Prediction requirements for compliance of Wireless Alarms. Along with these changes, the Standard, where applicable, also covers all remote accessories that are to be connected. General changes (not specific itemized gap analysis) of new/revised requirements are found in table below.

**NOTE:** This 3<sup>rd</sup> edition of the Standard [CAN/ULC-S531-14] was first cited and adopted in the 2015 Editions of the National Fire Code and National Building Code of Canada. Adoption and enforcement are noted to be already in effect for many provinces and are cited in the attached hyperlink. Early adoption by the manufacturers is strongly recommended and expedited testing and certification services are available to show conformance to the requirements.

[https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes\\_centre/code\\_adoption.html](https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes_centre/code_adoption.html)

**If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).**

**Client Action:**

**Information** – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

***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
3.22		<p><b>Glossary</b> – Many items in the glossary have been revised or expanded, such as the following:</p> <p><b>3.22 SPECIFIED LIFETIME</b> – For purposes of this standard, specified lifetime will be referred to as “lifetime.” A continuous period of time specified by the manufacturer, during which the alarm meets the requirements of this standard. The manufacturer will specify the start date of the period as either the date of manufacturer or the fully assembled unit in its final enclosure, or the date the unit is placed into service.</p>
6		<p><b>6.1 - 6.4 - Automatic Drift Compensation For Smoke Sensing</b></p> <p>If this is a feature within the Smoke Alarm additional testing is needed.</p>
8		<p><b>Smoke Sensitivity Indicating Means (Optional)</b></p> <p>This requirement applies to end product installation smoke alarms that are provided with a means for measuring or indicating the nominal sensitivity or a sensitivity range.</p> <p>If the device is included, then must be evaluated under test.</p>
9		<p><b>Maintenance (Field Cleaning)</b></p> <p>If a smoke alarm is capable of being cleaned it must be evaluated under test.</p>
10		<p><b>Alarm Silencing Feature</b></p> <p>Smoke alarms powered by a non-replaceable battery shall be provided with a temporary alarm silencing means.</p>
35		<p><b>Automatic Drift Compensation</b></p> <p>If this is a feature within the Smoke Alarm additional testing is needed.</p>
37.7		<p><b>Smoke Chamber Monitoring</b></p> <p>37.7.1 The clean-air condition of a smoke chamber shall be monitored for contamination. A trouble signal shall be indicated at the smoke alarm before the clean-air reference value changes by more than 50 % of the shift required to place the smoke alarm into the alarm condition.</p> <p>37.7.2 Two smoke alarms, one set at maximum and one set at minimum sensitivity, shall be used for the test. Each smoke alarm is to have the clean-air reference value in the smoke chamber gradually adjusted over a 48-h period in increments</p>



CLAUSE	VERDICT	COMMENT
		not exceeding 1/14 of the value required to reach 50 % of the shift that places the smoke alarm into the alarm condition. The reference value is to be adjusted not more than once each h.
		<b>End-of-Life Signal</b>
37.8		The smoke alarm shall indicate end-of-life, based on the manufacturer’s specified lifetime (not to exceed 10 years), with an end-of-life signal.
		<b>Multi-Criteria Smoke Alarm With Gas Sensor</b>
37.9		If applicable then must be evaluated under test.
		<b>Velocity Sensitivity</b>
40.1.1		Revised requirement for smoke alarm sensitivity shall not vary by more than 1% in either the least or most favorable smoke entry positions.
		<b>Selectivity Test – Multi-criteria Smoke Alarms Incorporating Gas Sensor</b>
48		If device has this feature then must be evaluated under test.
		<b>Alternate Corrosion Test (21 Day)</b>
58		The 21 day corrosion test outlined in 58.2 – 58.4 may be conducted in lieu of the Corrosion Test outlined in Section 57.
		<b>Surge Immunity Test (Combination Wave)</b>
59.4		New test required for AC powered smoke alarms.
		<b>Surge Current Test</b>
59.5		New test required for AC powered smoke alarms.
		<b>Supply Line (Ring Wave Surge Voltage) Transients</b>
59.6		New test required for AC powered smoke alarms.
		<b>Supply Line (Extra-Low-Voltage Circuit) Transients</b>
59.7		New test required for AC powered smoke alarms.
		<b>Low Frequency Alarm Signal Format</b>
76.4		If the alarm provides a Low-frequency 520Hz format then it must comply with this new test requirement – test needed.
		<b>Field Service Tests (If Recommended By The Manufacturer)</b>
77		If this method is recommended by the manufacturer then new test procedure is required. Includes Maintenance cleaning procedure Clause 77.2.



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80		<b>Smoke Alarms For Use In Recreational Vehicles (RV)</b> New addition to this Edition.  If the alarm is for use in a recreational vehicle, then test method is required.
81		<b>Smoke Alarms For Use On Recreational Boats</b> New addition to this Edition.  If the alarm is for use in a recreational boat, then test method is required.
91		<b>Markings</b>  New marking requirements added.
92		<b>Instructions</b>  New instructions requirements added.
93		<b>Installation Instructions - Wiring Diagram</b>  New installation instructions requirements added.
CUSTOMERS PLEASE NOTE: This Table and column "Verdict" can be used in determining how your current or future production is or will be in compliance with new/revised requirements.		