

STANDARD INFORMATION

Standard Number: CSA C22.2 No 205

Standard Name: Signal Equipment

Standard Edition and Issue Date: 3rd Edition Dated May 1, 2017

Date of Revision: May 1, 2017

Date of Previous Revision of Standard: August 1, 2015

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **July 2, 2020 or May 28, 2021 for Toxic Gas Detectors**

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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.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:

- Removal of toxic gas detectors from scope
- Expanded scope to cover components that monitor and control activity and the equipment powered by an energy limited Class 2 power supply
- Provide clarification for many new signal applications that are now in use
- New requirements for ozone, toxic gas and radon detectors

Specific details of new/revised requirements are found in table below.

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined out below.</i>		
Toxic Gas Detectors		Toxic Gas detectors are no longer covered under CSA C22.2 No. 205. All toxic gas detectors must be re-evaluated to ULC S588 prior to May 28, 2021.
4	Info	Construction
4.10	Info	Double insulation
4.10.1		Cord-connected equipment that does not have provision for grounding shall be double-insulated <u>and shall be in accordance with CSA C22.2 No. 0.1 and as supplemented by Clauses 4.10.2 to 4.10.18.</u>
4.19	Info	Spacings
		The temperature, safety, limiting and regulating control, single operation device and pressure operated safety control, shall meet the requirements of CSA C22.2 No. 24 or CAN/CSA E60730-1 and CAN/CSA E60730-2-9.
		a) <u>CSA C22.2 No. 24 as follows:</u>
		i) <u>endurance cycles as applicable for the end application use in accordance with Table 10;</u>
		ii) <u>the calibration tolerance requirements as applicable for the end application use, in accordance with Table 6; and</u>
4.19.8.1		iii) <u>for electronic controls with safety functions control Class B minimum applies and for electronic controls with no safety functions control Class A applies; or</u>
		b) <u>CAN/CSA-E60730-1 and CAN/CSA-E60730-2-9 as follows:</u>
		i) <u>Type 2 and for electronic controls, control Class B minimum applies;</u>
		ii) <u>endurance cycles as applicable for the end application use, as referenced in Annex CC of CAN/CSA-E60730-2-9;</u>
		iii) <u>the calibration and drift tolerance requirements as applicable for the end application use, referenced in Annex AA of CAN/CSA-E60730-2-9; and</u>
		iv) <u>controls without any declared safety functions and calibration tolerances are Type 1, and for electronic controls, where no safety functions are conducted, control Class A applies.</u>
4.19.8.2		Thermal cut-off shall meet the requirements of CSA C22.2 No 209 or CAN/CSA-E60691 <u>for the required maximum functioning temperature.</u>



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
4.20.5.1		Sensors and other devices used in wireless sensor networks (WSN) and communicating in a closed communication system shall meet the requirements of Clauses 4.20.5.1 to 4.20.5.4.
		<i>New clause added;</i>
4.20.5.2		Sensors and other devices that communicate the signal to the receiver hub or gateway or devices connected to the network that are performing actuation functions shall be tested together as a combination to ensure that the intended functions are achieved. All operating modes shall be taken into consideration including where applicable active, idle, and sleep modes.
		<i>New clause added;</i>
4.20.5.3		If any safety related controlled function within the local network is performed, all associated devices including the embedded devices shall comply with the requirements of Clause 4.20.2. Any remote signaling device involving safety functions shall comply with Clause 4.20.4.
		<i>New clause added;</i>
4.20.5.4		The status of available sensor battery power or power capability to send the signal, shall be communicated to the monitoring device in the system. The frequency of the above status signal shall be as declared for the end use application. In the event of a failure of the sensor power source, safety functions shall not be nullified and shall not cause any hazards.
		<i>New clause added;</i>
4.20.6.1		For Class B or Class C control devices EMC tests shall be conducted to C22.2 No. 0.8, Clause 6.
		<i>New clause added;</i>
4.20.6.2		Where wireless radio technology is used, frequencies up to 6 GHz shall be considered when conducting the EMC immunity radiated test in accordance with CSA C22.2 No. 0.8. The immunity radiated test referenced in Clause 6.4.3.4 of C22.2 No. 0.8 shall be conducted as given in Tables 13 and 14.
		<i>New clause added;</i>
4.20.7		Controls involving safety functions that use Hall-effect devices and are susceptible to magnetic fields shall tolerate power frequency magnetic fields. The control shall be tested as described in Clause 6.20.3. Note: For example, controls that include sensors which use Hall-effect devices, or controls incorporating reed relays.



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
4.20.8.1		For Class B and Class C control functions, adequate security measures such as passwords, or cryptographic or other techniques shall be taken to prevent unauthorized access to the controlled function. Where errors associated with data transmission could impact the safety of the EUT, the design shall include mitigation techniques as outlined in Clause 5.4 and Item 6 of Table B.1 of C22.2 No. 0.8.
		<i>New clause added;</i>
4.20.8.2		There shall be evidence that acceptable security techniques are incorporated in the software and supporting technical documentations.
		<i>New clause added;</i>
4.20.9		Toxic gas detectors and radon detectors shall comply with C22.2 No. 0.8 and shall be minimum control function Class B.
		<i>New clause added;</i>
4.20.10		Detection tolerance values shall comply with Clauses 9 and 10. See Annexes D and E for additional information.
		<i>New clause added;</i>
4.20.11		Access control equipment for use in restricted areas shall be subjected to functional safety evaluation in accordance with the requirements of Clause 4.20. The control function of minimum Class B shall apply in accordance with CSA C22.2 No. 0.8. Any remote functions associated with the equipment shall not permit any unauthorized access to the restricted area.
		<i>New section added;</i>
4.26		Access control This section contains requirements for access control (see standard for details).
		<i>New section added;</i>
4.27		Energy management This category of equipment controls an electrical load and cycles accordingly in response to a signal from a sensor or a transducer that might be pre-programmed (see standard for details).



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
4.28		Electrically operated valves and actuators shall meet the requirements of a) CSA C22.2 No. 139 for a general purpose or safety type valves and actuators, as required for the end application use; b) CAN/CSA E60730-2-8 for water valves; or c) CAN/CSA E60730-2-14 for actuators, either Type 1 or Type 2 safety action, as required for the end application use.
		<i>New clause added;</i>
4.29		For electronic equipment performing safety functions or as required for end use application conditions, where the equipment is subject to extreme ambient temperatures as declared, the thermal endurance test of Clause 6.18.4 shall be performed.
5	Info	Marking
5.1		The equipment shall be plainly marked in a permanent manner in a location where the details will be readily visible after installation, and shall include the following information: a) the manufacturer's name, tradename, or other recognized symbol of identification; b) the catalogue, style, model, or other type of designation; c) the nominal branch circuit supply voltage for which the equipment is intended; d) the frequency of the supply in hertz (Hz); e) the supply in amperes (A), watts (W), or volt amperes (VA); f) the rated output, if any, in watts (W) and frequency in hertz (Hz); g) the maximum load on any receptacles, if present; h) for luminaires, the following marking in letters at least 4.7 mm high for signal equipment that includes integral lighting fixtures: FIRE HAZARD CAUTION: MAXIMUM LAMPS ... WATTS, LAMP TYPE.... and ATTENTION — RISQUE D'INCENDIE : PUISSANCE MAXIMALE DES LAMPES ... WATTS, TYPE i) <u>the software version number where applicable, for electronic controls performing safety functions; and</u> j) <u>for gas detectors, the temperature range over which the unit will operate to the declared specifications.</u>



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
5.7		All gas detectors including radon type shall be marked directly on the device in a location visible after installation as follows: a) for radon type gas detector, "Replace by (yyyy/mm)" or instruction manual for maintenance; b) for commercial units toxic gas detectors, refer to instruction manual for maintenance procedures; c) reference to instruction manual or installation diagram; d) the type of gas being detected; and e) correct mounting position.
6	Info	Tests
6.2	Info	Rating and Operation Test
		<i>New section added;</i>
6.2.2		Operation Test This section contains requirements for operation tests (see standard for details).
6.18	Info	Overload and endurance
		<i>New section added;</i>
6.18.4		Thermal endurance test The purpose of the test is to cycle components of an electronic circuit between the extremes of temperature likely to occur during normal use (see standard for details).
6.20	Info	Immunity requirements
		<i>New section added;</i>
6.20.3		Power frequency magnetic field immunity test This section contains requirements for the power frequency magnetic field immunity test (see standard for details).
8	Info	In-line UV water sterilizers and similar appliances
		<i>New clause added;</i>
8.5		UV water sterilizers and other equipment that produces UV radiation which is not fully contained by the equipment enclosure, shall comply with the requirement of Clause 5.1.10.2 of CSA C22.2 No. 187. Note: Equipment pertaining to drinking water applications may need to comply with CSA B483.1 and/or NSF/ANSI 55 as needed in the final application.



CLAUSE	VERDICT	COMMENT
		<i>New section added;</i>
9		<p>Toxic Gas Detector</p> <p>This section contains requirements for toxic gas detectors used for commercial appliances (see standard for details).</p>
		<i>New section added;</i>
10		<p>Radon Gas Detector</p> <p>This section contains requirements for radon gas detectors (see standard for details).</p>
Annex B	Info	<u>In-line UV water sterilizers, ozone sanitizers and similar appliances</u>
B.1	Info	General requirements
B.1.1		The requirements of CAN/CSA-C22.2 No. 74 shall apply when a ballast is used. In addition, TIL B-68: "Interim Certification Requirements for Ballasts for Use with Fluorescent Lamps" shall apply for fluorescent lamp ballasts, <u>fluorescent lamp ballasts shall comply with CAN/CSA-E61347-2-3-03.</u>
B.3	Info	Ozone test
B.3.1		<p>The product shall be <u>connected to the water supply and shall be operated</u> in accordance with the operating manual supplied with the product.</p> <p>The test shall be conducted in a room</p> <ul style="list-style-type: none"> a) with a volume of 26.9 to 31.1 m³; b) with a minimum side dimension of 2.5 × 3.0 m; c) with a maximum height of 3.0 m; and d) without openings.
B.3.5		<p>The test room walls shall be covered with a sheet of polyethylene to make the chamber substantially airtight.</p> <p><u>The test room walls, floor, and ceiling shall be stainless steel or similar non-porous material and of a demonstrated ozone reactivity equivalent to stainless steel.</u></p> <p><u>The air tightness of the chamber shall be evaluated using ASTM D6670 at 10 Pa static conditions. To be considered air tight, the chamber shall have an air exchange rate of 0.03 ACH as determined using either fan pressurization or tracer gas methods.</u></p>



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
B.3.8		The ozone analyzer shall be able to record and or report data in 0.001 ppmv increments and shall have an accuracy of +/- 0.010 ppmv or better in accordance with the requirements of CSA C22.2 No. 187.
		<i>New clause added;</i>
		The ozone measurements shall be conducted in accordance with the requirements of CSA C22.2 No. 187 as follows:
B.3.9		<p>a) The emission of ozone shall be monitored for 24 h.</p> <p>b) The background level specified in Clause B.3.6 shall be subtracted from the maximum measurement during the test.</p> <p>c) The 8 h time-weighted average shall be calculated as follows:</p> <ul style="list-style-type: none"> i) 0–8 h; ii) 8–16 h; and iii) 16–24 h. <p>d) The time weighted average (TWA) shall be calculated using the following formula:</p> $TWA = (C_1T_1 + C_2T_2 + C_3T_3 + \dots + C_nT_n) / (8h)$ <p>where</p> <p>C = concentration in ppmv over the sampling period</p> <p>T = sampling period in hours</p>
		<i>New section added;</i>
B.4		<p>Equipment using ozone for sanitization purposes</p> <p>This section contains requirements for cord connected equipment applicable for sanitization purposes (see standard for details).</p>
		<i>New Annex added;</i>
Annex D		<p>Gas Detectors</p> <p>This annex contains requirements for gas detectors (see standard for details).</p>
		<i>New Annex added;</i>
Annex E		<p>Radon Detectors</p> <p>This annex contains requirements for radon detectors (see standard for details).</p>



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.
