Standards Update Notice (SUN)

Issued: 9/5/2014

Standard Information

Standard Number: CSA C22.2 No. 42
Standard Name: General use receptacles, attachment plugs, and similar wiring devices
Standard Edition and Issue Date: 6th Edition Issued September 01, 1999
Date of Revisions: 6th Edition Revised October 01, 2008
Date of Previous Revisions to Standard: 6th Edition Revised September 01, 2007

Effective Date of New/Revised Requirements

Effective Date (see Schedule below): **March 31, 2015**

Impact, Overview, Fees 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.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 (Specific details of new/revised requirements are found in table below)**:**
- Additional insulation material requirements.
- Additional tamper-resistant receptacle requirements.
- Additional Weather-resistant receptacle requirements.
- Additional corrosion resistance requirements.
- Additional marking requirements.
- Additional requirements for outlet devices and attachment plug terminals.

Schedule: So that shipping of products with Listing Marks will not be interrupted, an ***approximate*** schedule has been established to ensure Listing Reports are found compliant by Effective Date:

- September 30, 2014 = 6 Month Report Review – Intertek will review all Reports. Update if compliance is verified or issue Findings Letter/Quote for any re-evaluations needed
- October 30, 2014 = 5 Month Quote Cut-off – Quotes returned for necessary re-evaluations
- February 27, 2015 = 30 Day Warning – Client advised of all non-compliant Reports to be Suspended
- March 31, 2015 = Effective Date – ATM Suspended for all non-compliant Reports

Fees: An initial review of Listing Report (s) will be covered by a direct billing project and will be invoiced at not more than $1000 per report.

Client Action Required:

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.

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Description of New/Revised Technical Requirements

Clause	Verdict	Comment	NC#
		NOTE: Additions to existing requirements are underlined below, and deleted sections ~~are crossed out~~.	
5.1.3	Info	**Insulating materials**	
5.1.3.7		A polymeric material used for electrical insulation or enclosure of live parts shall have a temperature index, mechanical, without impact, as follows: (a) 80 — for material in contact with or supporting live parts; (b) 80 — for material used for enclosures of permanently wired devices; and (c) 60 — for material in contact with (or supporting live parts) or used for enclosures of cord-connected or direct plug-in devices.	
5.1.3.8		Compliance with Clause 5.1.3.7 shall be determined in accordance with CAN/CSA-C22.2 No. 0.17 or by accelerated aging test in Clause 8.6	
5.10		**Tamper-resistant receptacles** Tamper-resistant receptacles shall be marked in accordance with Clause 7.4 and shall comply with the test requirements of Clause 8.35.	
5.11	Info	**Weather-resistant receptacles**	
5.11.1		Weather-resistant receptacles shall be marked in accordance with Clause 7.5 and shall comply with the construction requirements of Clauses 5.11.2 and 5.11.3 and the test requirements of Clause 8.36.	
5.11.2	Info	**Insulating materials**	
5.11.2.1		An insulating material used in the construction of the face of a weather-resistant receptacle shall comply with Clause 8.36.4.	
5.11.2.2		Insulating materials used in the construction of components other than the face of a weather-resistant receptacle (e.g., body, shutters, and indicator lights) shall not be required to comply with Clause 5.11.2.1. This exception shall not apply to external shutters located on the outer face of the device.	
5.11.3	Info	**Corrosion resistance**	
5.11.3.1		Except as noted in Clause 5.11.3.2, all current-carrying parts shall be copper alloy.	
5.11.3.2		All wire-binding screws and terminal pressure plates shall be copper alloy or stainless steel having a minimum of 16% chromium content. An internal backwire nut may be steel protected with nickel, as described in Clause 5.11.3.4(a)(iii) or (iv). Sheared or cut edges shall be protected; this protection shall not be required for punched holes with screw threads.	
5.11.3.3		Metals used in combination shall be galvanically compatible.	

5.11.3.4		Non-current-carrying metal parts (e.g., metal mounting yoke) and mounting screws shall be (a) steel protected by one of the following coatings: (i) hot-dipped mill-galvanized sheet steel conforming with coating designation A60, G60, or G90 in ASTM A653/A653M, with not less than 40% of the zinc on any side, based on the minimum single-spot test requirement in ASTM A653/A653M. The weight of the zinc coating may be determined by any acceptable method; however, in case of doubt, the weight of the coating shall be established in accordance with ASTM A90/A90M. Additional protection shall not be required for sheared, cut edges, punched holes, and screw threads; (ii) a zinc coating, other than that provided on hot-dipped mill-galvanized steel, having an average thickness of not less than 0.013 mm or a thickness of less than 0.0102 mm. Additional protection shall not be required for sheared, cut edges, punched holes, and screw threads; (iii) a nickel coating having a thickness of not less than 0.0038 mm; or (iv) a tin-over-nickel coating having an overall thickness of not less than 0.0038 mm; (b) stainless steel having a minimum of 16% chromium content; (c) copper, bronze, or brass alloy; or (d) aluminum or aluminum alloy.	
7.2	Info	**Marking of receptacles**	
7.2.1.5		**Receptacles intended for use with copper wire only** Flush receptacles of the configurations 5-15R and 6-15R with combination push-in and wire-binding screw terminals shall be provided with the following marking on the device where visible during installation: "Push-in terminals for use with 14 AWG solid copper conductors only" or equivalent wording.	
7.4		**Marking of tamper-resistant devices** In addition to other required markings, tamper-resistant receptacles shall be marked with the phrase TAMPER RESISTANT or the letters TR. The letters TR shall be at least 4.8 mm high. The marking shall be on the device where visible after installation with the cover plate removed.	
8.9.2	Info	**Outlet devices and attachment plug terminals**	
8.9.2.1		The temperature of the terminals shall not exceed 55 °C when the device is tested in accordance with Clauses 8.9.2.2 to 8.9.2.4. ~~Devices rated 30 A or less, with screw-actuated clamps or binding screw terminals, shall not require a terminal temperature test.~~	
8.9.2.5		Receptacle, flush type, having a 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, or 6-20RA configuration, provided with means for feed-through wiring on a branch circuit shall be subject to a terminal temperature test at a current of 20 A. The temperature rise on the terminals shall not be more than 30°C. Self-contained receptacles are not required to be subjected to a terminal temperature test. Devices employing Push-In terminals shall be subjected to the tests in Clause 8.9.4. If a device employs both Push-In terminals and either pressure-wire, clamp, set screw or wire-binding screw terminals, the Push-In terminals shall be subjected to the tests in Clause 8.9.4. The remaining terminals shall be subjected to the terminal temperature test in this Clause. Such receptacles shall be marked to identify the intended use of each terminal in accordance with Clause 7.2.1.5.	

8.9.2.6		For receptacles of configurations 5-20R, 5-20RA, 6-20R, and 6-20RA the contact temperature and terminal temperature tests shall be combined. The receptacle shall be wired with 12 AWG (3.3 mm2) solid or stranded copper building wire.	
8.26.3		Devices rated 15 A shall be tested when connected to No. 12 AWG test conductors and carrying a current of ~~40+0 -1~~ 43+0 -1 at the cycle rate specified in Clause 8.26.6.	
8.35	Info	**Tamper-resistant receptacles**	
8.35.1		In addition to all other tests required for receptacles in this Standard, the tests specified in Clause 8.35 shall be applied to tamper-resistant receptacles (see Table A.5).	
8.35.2	Info	**Probe test**	
8.35.2.1		A tamper-resistant receptacle shall not allow contact to be made between the probes shown in Figures 29 and 30 and any live part of the receptacle through the outlet slots when tested in accordance with Clause 8.35.2.	
8.35.2.2		Twelve previously untested devices shall be used for this test. The probe shown in Figure 29 shall be applied to each of the outlet slot openings of the receptacle with a force of 2.2 N in an attempt to bypass the tamper-resistance mechanism. A suitable indicating device (e.g., an ohmmeter, battery-and-buzzer combination, or a similar device) shall be connected between the probe and the wiring terminal of the outlet slot being tested to determine whether contact is made. The probe shall be manipulated in the outlet slots in any orientation that allows access to live parts within the receptacle.	
8.35.2.3		Twelve devices previously tested in Clause 8.35.2.2 shall be used for this test. The probe shown in Figure 30 shall be applied to each of the outlet slot openings of the receptacle with a force of 45 N in an attempt to bypass the tamper-resistance mechanism. A suitable indicating device (e.g., an ohmmeter, battery-and-buzzer combination or a similar device) shall be connected between the probe and the wiring terminal of the outlet slot being tested to determine whether contact is made. The probe shall be inserted in the outlet slots successively in three directions in any orientation that allows access to live parts within the receptacle. The probe shall be applied for approximately 5 s in each of the three directions. During each application, the gauge shall not be moved or rotated and shall be withdrawn when moving from one direction to the next.	
8.35.3	Info	**Impact test**	
8.35.3.1	Info	**General**	
8.35.3.1.1		A tamper-resistant receptacle shall withstand either the ball-pendulum impact described in Clause 8.35.3.2 or the vertical-ball impact described in Clause 8.35.3.3 without breakage of the receptacle face or tamper-resistance mechanism or any other damage that could increase the risk of fire or electric shock as determined in Clause 8.35.3.1.2. The receptacle shall be capable of functioning as intended after completion of the test.	

8.35.3.1.2		Upon completion of this test, each device shall (a) be capable of completely mating with the intended attachment plugs (both grounding and nongrounding types, rated 15 and 20 A, where applicable); (b) be subjected to a repeated probe test in accordance with Clause 8.35.2; (c) be subjected to the dielectric voltage-withstand test in accordance with Clause 8.35.5; and (d) not crack the receptacle face or tamper-resistant mechanism area that protrudes through the faceplate such that a 0.8 mm diameter rod can be inserted through the crack and contact live parts. Additionally, all other receptacle areas with the faceplate removed shall not have any cracks that expose live parts or separation of the receptacle face and body halves such that a 1.6 mm rod can be inserted through the crack.	
8.35.3.1.3		Six devices that were previously subjected to the probe test shall be used. One outlet face of each of the six devices shall be subjected to a single impact by a steel sphere, 50.8 mm in diameter, and weighing 0.535 kg by either of the methods specified in Clause 8.35.3.2 or 8.35.3.3.	
8.35.3.2	Info	**Ball-pendulum impact**	
8.35.3.2.1		Each device shall be mounted in a single gangable metallic flush outlet box fastened to a frame as shown in Figure 31. A nonmetallic flush device cover plate shall be installed on the receptacle in the intended manner. The frame shown in Figure 31 shall be clamped firmly in place or otherwise provided with rigid support to prevent movement during the application of the impact force.	
8.35.3.2.2		The steel sphere shall be suspended by a cord and swung as a pendulum as shown in Figure 32, dropping through a vertical distance of 1295 mm to strike the outlet face surface of the receptacle with an impact of 6.8 J. For duplex receptacles, three devices shall be tested using one outlet and three using the other outlet.	
8.35.3.3	Info	**Vertical-ball impact**	
8.35.3.3.1		The devices shall be mounted to a cast metal (malleable iron) outlet box. A nonmetallic flush-device cover plate shall be installed on the receptacle in the intended manner. The receptacle, faceplate, and box shall be placed on a steel plate at least 12.7 mm thick with the outlet facing upward.	
8.35.3.3.2		The steel sphere shall be dropped from a height of 1295 mm to impact the centre of each receptacle outlet as shown in Figure 33. For duplex receptacles, three devices shall be tested using one outlet and three using the other outlet.	
8.35.4	Info	**Mechanical endurance test**	
8.35.4.1		At the completion of this test, there shall not be any chipping, breaking, or loosening of parts that could adversely affect the functioning of the device as determined in Clause 8.35.4.2. The tamper-resistance mechanism shall be capable of performing its intended function.	
8.35.4.2		Upon completion of this test, each device shall be (a) capable of completely mating with the intended attachment plugs (both grounding and nongrounding types, rated 15 and 20 A, where applicable); (b) subjected to a repeated probe test in accordance with Clause 8.35.2; and (c) subjected to the dielectric-voltage withstand test in accordance with Clause 8.35.5.	

8.35.4.3		Six devices that were previously subjected to the probe test described in Clause 8.35.2 shall be used. One outlet face of each device shall be tested by inserting and withdrawing 5000 times an attachment plug having rigidly secured solid brass blades. When an equipment-grounding connection is provided in the device being tested, a grounding-type attachment plug shall be used. For duplex receptacles, three devices shall be tested using one outlet and three using the other outlet.	
8.35.4.4		The test shall be conducted by machine. The machine shall withdraw and insert an unrestricted attachment plug with an average velocity of 760 mm/s ± 75 mm/s in each direction during a 64 mm stroke measured from the full insertion position. The velocity shall be determined without the outlet device installed on the machine to remove restrictions on the plug motion.	
8.35.4.5		Blades, contacts, or tamper-resistance mechanisms shall not be adjusted, lubricated, or otherwise conditioned before or during the test. The attachment plug used for this test may be changed after each 1000 cycles.	
8.35.5	Info	**Dielectric voltage-withstand test**	
8.35.5.1		A tamper-resistant receptacle shall withstand without breakdown, for a period of 1 min, the application of a 60 Hz essentially sinusoidal potential equal to twice the rated voltage of the receptacle plus 1000 V. The potential shall be applied between live parts of opposite polarity and between live parts and grounded or dead metal parts, including the mounting yoke of the receptacle.	
8.35.5.2		Six devices that were previously subjected to the probe and impact tests and six devices that were previously subjected to the probe and mechanical endurance tests shall be used. A mating attachment plug with solid brass blades shall be inserted into the contact openings of three of the six devices. The attachment plug shall be capable of withstanding the application of a 2500 V potential for devices rated 300 V or less and a 3500 V potential for devices rated greater than 300 V. The test potential shall be supplied from a 500 VA or larger capacity testing transformer whose output is essentially sinusoidal and can be varied. The applied potential shall be increased from zero until the required test voltage is reached and shall be held at that voltage for a period of 1 min. The increase in the applied potential shall be at a uniform rate and as rapid as is consistent with its value being correctly indicated by a voltmeter.	
8.36		**Weather-resistant receptacles**	
8.36.1		In addition to all other applicable tests required for receptacles in this Standard, the tests described in Clause 8.36 shall be applied to weather-resistant receptacles, marked in accordance with Clause 7.5.	
8.36.2		**Cold impact test**	
8.36.2.1		When subjected to the cold impact test specified in Clause 8.36.2.2, six representative weather-resistant receptacles shall withstand the impact without breakage of the receptacle face or any other damage that could increase the risk of fire or electric shock. Upon completion of the test, each device shall (a) be capable of completely mating with the intended attachment plugs (both grounding and nongrounding types); (b) not crack to the extent that a 0.8 mm diameter rod can be inserted through the crack and contact live parts; and (c) be subjected to the dielectric voltage-withstand test specified in Clause 8.21.1. The devices shall not be required to be subjected to the humidity conditioning specified in Clause 8.21.2.	

8.36.2.2		Six representative weather-resistant receptacles shall be conditioned for 5 h in circulating air at a temperature of –20 °C ± 1 °C. Immediately following removal from the conditioning chamber, each device shall be subjected to the impact test specified in Clause 8.36.2.3.	
8.36.2.3		Six receptacles shall be mounted to a cast metal (malleable iron) outlet box and a metallic flush-device cover plate shall be installed on the receptacle in the intended manner. The receptacle, faceplate, and box shall be placed on a steel plate at least 12.7 mm thick with the outlet facing upward. A 1.36 kg cylindrical weight, 31.8 mm in diameter and having a flat end without any sharp edges, shall be dropped from a height of 279 mm to impact the centre of each receptacle outlet. For duplex receptacles, three devices shall be tested using one outlet and three using the other outlet.	
8.36.3	Info	**Accelerated aging test**	
8.36.3.1		Upon completion of the test specified in Clause 8.36.3.2, each device shall (a) be capable of completely mating with the intended attachment plugs (both grounding and nongrounding types); (b) not crack to the extent that a 0.8 mm diameter rod can be inserted through the crack and contact live parts; and (c) be subjected to the dielectric voltage-withstand test specified in Clause 8.21.1. The devices shall not be required to be subjected to the humidity conditioning specified in Clause 8.21.2.	
8.36.3.2		The device shall be placed in a full-draft air-circulating oven for 7 days at a temperature of 70 °C. The device shall be allowed to rest at room temperature for at least 1 h after removal from the oven.	
8.36.4	Info	**Ultraviolet light and water exposure test**	
8.36.4.1		When subjected to the ultraviolet light and water exposure test specified in Clause 8.36.4.2, the insulating material employed in the face of a weather-resistant receptacle shall not exhibit deterioration (e.g., cracking, crazing, or warping) after exposure. Insulating material employed in the face of a weather-resistant receptacle that has been investigated in accordance with the requirements for the ultraviolet light exposure test in UL 746C, and so identified, shall not be required to comply with the requirement of this Clause.	
8.36.4.2		The receptacle shall be mounted such that the receptacle face is exposed to ultraviolet light and water by using either of the following methods: (a) twin enclosed carbon-arc, Type D, in accordance with ASTM G151 and ASTM G153: Method 1, continuous exposure to light and intermittent exposure to water spray, with a programmed cycle of 120 min consisting of a 102 min light exposure and an 18 min exposure to water spray with light, shall be used. The apparatus shall operate with a black-panel temperature of 63 °C ± 3 °C; or (b) xenon-arc, Type B, in accordance with ASTM G155: Test Method A, continuous exposure to light and intermittent exposure to water spray, with a programmed cycle of 120 min consisting of a 102 min light exposure and an 18 min exposure to water spray with light, shall be used.	
8.36.4.3		The apparatus shall operate with (a) a 6500 W, water-cooled xenon-arc lamp; (b) borosilicate glass inner and outer optical filters; (c) a spectral irradiance of 0.35 W/m2/nm at 340 nm; and (d) a black-panel temperature of 63 °C ± 3 °C.	
8.36.4.4		Three representative devices in each colour shall be mounted on the inside of the cylinder in the ultraviolet-light apparatus in such a way that the devices do not touch each other.	

8.36.4.5		For twin enclosed carbon-arc, the representative devices shall be exposed for a total of 720 h. For xenon-arc, the representative devices shall be exposed for a total of 1000 h.	
8.36.4.6		For a material that is to be evaluated in a range of colours, representative devices in the natural colour (when used unpigmented) and in the most heavily pigmented light and dark colours shall be provided to represent the colour range.	
		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.	