



**Summary of Substantive Changes  
between the 2015 and the 1993 editions  
(including Updates No. 1 and No. 2 dated October 1993 and April 2006)  
of  
CSA C22.2 No. 218.2 “Hydromassage bathtub appliances”**

**Presented to the IAPMO Standards Review Committee on January 11, 2016**

**General:** There were significant formatting and editorial changes to this standard. In addition, technical changes were incorporated which may have an impact on currently listed products. The substantive changes are:

- Added additional requirements for optical isolating devices and included requirements for power supplies providing two levels of protection (see Section 5.4.3.2).
- Updated the referenced standards and changed the requirement for capacitors providing impedance isolation (see Section 5.4.3.3).
- Updated the referenced standards and changed the requirements for overcurrent protective devices (see Section 5.16 and Table 5).
- changed the requirements of the leakage current limit and include requirements for DC leakage current (see Section 7.4 and new Table 8).
- Added additional performance criteria for the resistance to impact test (see Section 7.12).
- Removed the requirement to provide a single or duplex receptacle with cord connected hydromassage bathtubs and increased the allowable number of cord and plug connections from one to three (see Section 9.1).

Section 3, Definitions: Removed the definition of competing grounds as follows:

*Combined heater vessel/current collector—a conductive chamber, surrounding a heater element, that performs the function of a current collector.*

~~*Competing grounds—current flow as a result of difference in potential between conductive parts, each of which is connected to earth.*~~

*Double Insulation—a means of shock hazard reduction accomplished by using an insulation system comprised of both basic insulation and supplementary insulation.*

Section 5.2.1.1, General: Changed the term “live parts” to “energized parts” throughout the standard as follows:

~~4.2.2.1.5~~ 5.2.1.1.5

~~Live~~ Energized parts, including insulated wiring and non-water-resistant cords, shall be located ...



Section 5.2.3 Equipment for installation above combustible surfaces: Revised the referenced standard for flammability testing and included the flaming oil test from C22.2 No. 1 into Section 7.26 as follows:

~~4.2.4.2~~ 5.2.3.2

Where a barrier is provided to ensure compliance with the requirements of ~~Clause 4.2.4.1~~ 5.2.3.1, it shall

- a) be made of metal or non-metallic material classified as 0.6 V-1, 0.6 V-0, or shall meet the requirements of ~~Test A of CSA Standard C22.2 No. 0.6 Clause D1 of CAN/CSA-C22.2 No.0.17~~;
- b) not contain perforations, except those meeting the flaming oil test for perforated panels of ~~CSA Standard CAN/CSA-C22.2 No. 1 Clause 7.26~~; and
- c) have a size and shape not less than the outline of the energized part that is being protected, projected onto the enclosure surface as illustrated in Figure 1.

Section 5.4.3.2 Electrical isolation, Added additional requirements for optical isolating devices and included requirements for power supplies providing two levels of protection as follows:

~~4.4.3.2.1~~ 5.4.3.2.1

Components providing one level of protection components complying with the following requirements may be used to form one level of protection (electrical isolation):

...

c) An optical isolating device shall meet

- i) the applicable dielectric voltage withstand test of ~~Clause 6.5~~ Clause 7.5 and Table 2;
- ii) the applicable spacing requirements of ~~Clause 4.11.3~~ Clause 5.11.3, Item g) between the input and output terminals, external to the device; and
- iii) CSA Certification Component Acceptance Notice No. 5A.

5.4.3.2.2

Components providing two levels of protection components complying with the following requirements may be used to form two levels of protection (electrical isolation):

...

c) A power supply shall meet the construction and performance test requirements for a safety-extralow voltage circuit in accordance with CAN/CSA-C22.2 No. 60950-1 assuming an installation environment of Overvoltage Category II and Pollution Degree 3.

...

~~(d)e) Optical Isolating Device~~ An optical isolating device shall meet the following:

- i) the applicable dielectric voltage withstand test of ~~Clause 6.5~~ Clause 7.5 and Table 2;
- ii) the spacing requirements of ~~Clause 4.11.3~~ 5.11.3, Item f) between input and output terminals external to the device;
- iii) the spacing requirements of Clause 5.11.3, Item f) between input and output terminals internal to the device (or the thermal cycling test of CAN/CSA-C22.2 No. 60950-1, Clause 2.10.9, followed by the dielectric voltage withstand test of Clause 7.5 and Table 2 of this Standard);
- iv) the minimum distance through insulation of 0.4 mm; and
- v) the CSA Certification Component Acceptance Notice No. 5A.



Section 5.4.3.3, Impedance isolation: Updated the referenced standards and changed the requirement for capacitors providing impedance isolation as follows:

~~4.4.3.3.8~~ 5.4.3.3.8

Components providing impedance isolation between an intermediate circuit and an ac supply circuit; between an intermediate circuit and an isolated circuit, or accessible feature or part in contact with the tub water; and when suitably combined between an ac supply circuit and an isolated circuit, a feature accessible to an occupant, or part in contact with the tub water shall comply with the following requirements:

~~(a) Resistor(s)~~—A resistor shall meet

(i) the dielectric voltage withstand test requirements of ~~Clause 6.5~~ Clause 7.5 and Table 2, for a single level of protection, without breakdown, physical damage, or reduction of impedance characteristics; and

(ii) the spacing requirements of ~~Clause 4.11.3~~ Clause 5.11.3, Item (g) between the input and output terminals (external to the device); or

~~(b) Capacitor(s)~~—A capacitor shall meet

~~(i) the ac line isolation requirement(s) applied to capacitors in CSA Standard CAN/CSA-C22.2 No. 1;~~

~~(ii) the applicable dielectric voltage withstand requirements of Clause 6.5 and Table 2; and~~

~~(iii) the spacing requirements of Clause 4.11.3, Item (g) between applicable terminals (external to the capacitor).~~

b) A capacitor shall be type Y (Y1, Y2 as applicable) as detailed in CAN/CSA-E60384-14.

5.16.1 Overcurrent protective devices: Updated the referenced standards and the requirements for overcurrent protective devices provided for the protection of wiring external to an enclosure as follows:

~~4.16.1.15~~.16.1.1

*Overcurrent protective devices provided for the protection of wiring external to an enclosure, or for protection of a specific load operating at supply voltage within the unit, shall meet the requirements of*

a) ~~CSA Standard CAN/CSA-C22.2 No. 5.1 or C22.2 No. 59.1~~ for circuit breakers, CSA C22.2 No. 5 or for branch-circuit fuses, CSA C22.2 No. 248.6 or C22.2 No. 248.7 or CSA C22.2 No. 248.11; or

b) ~~CSA Standard CAN/CSA-C22.2 No. 5.1 or C22.2 No. 59.1~~ for supplemental fuses, CAN/CSA-C22.2 No. 248.14 or for supplementary protectors, CAN/CSA C22.2 No. 235, and shall comply with the abnormal test of ~~Clause 6.9~~ Clause 7.9.

Section 7.4, Leakage current test — Occupant-accessible features and tub water: Changed the requirements of the leakage current limit as follows:

~~6.4.7.4.7~~

*Leakage current shall not exceed ~~0.5 mA~~ the limits specified in Table 8 under any condition of test circuit switch settings, when measured between any*

(a) *accessible part including the tub water and the identified supply conductor; and*

(b) *two simultaneously accessible parts having a separation distance of less than 1.5 m.*



7.12.3 Resistance to impact: Added additional performance criterion for the resistance to impact test as follows:

~~6.12.3.17.12.3.1~~

*Sample(s) of enclosure(s) shall be conditioned in accordance with Clause ~~6.12.3.27.12.3.2~~ and then subjected to the impact test described in Clause ~~6.12.3.37.12.3.3~~. The impact shall not*

*(a) reduce spacings below the minimum values required by Clause ~~4.11~~5.11;*

*(b) make any bare live parts or internal wiring accessible to contact;*

*(c) have an adverse effect on insulation; and*

*(d) produce any other condition resulting in a risk of shock, fire, or casualty hazard from the equipment;*  
*and*

*e) impair compliance with CAN/CSA-C22.2 No. 94.2 as required by Clauses 5.2.1.1.1, 5.4.2.7, and 5.29, Item c) of this Standard.*

7.23 Mould Stress Relief Test: Added the requirement to maintain a minimum temperature of 70 °C for the 24 h period for conditioning of the enclosure as follows:

~~6.24.17.23.1~~

*Enclosures composed of polymeric materials shall be conditioned for not less than 24 h at a temperature 20 °C higher than the maximum temperature measured on the enclosure, during the normal temperature test of Clause ~~6.3~~ 7.3, but not less than 70 °C.*

Section 9.1, General: Removed the requirement to provide a single or duplex receptacle with cord connected hydromassage bathtubs and increased the allowable number of cord and plug connections from one to three as follows:

~~8.1.2~~ 9.1.2

*Cord- and plug-connected hydromassage units shall be provided with*

*(a) ~~a single, not more than three~~ permanently ~~connected attached~~, factory installed cord(s) and attachment plug(s) ~~cap~~ rated at not more than 15 A 125 V; and*

*(b) ~~a single or duplex receptacle rated at not more than 15 A 125 V and a label with the required mounting instructions.~~*

Section 9.2, Supply cord and attachment plug: Changed allowable gauge for power supply cords from 14 AWG to that permitted by table 12 of the Canadian Electrical Code, Part I.

~~8.2.19.2.1~~

The power supply cord shall be

*a) factory installed ~~and be~~*

*(a) ~~b~~ a cord of the hard usage type suitable for wet locations (e.g., Types SJOW, SJTW, and SJTOW), which complies with CSA C22.2 No. 49;*

*(b) ~~c~~ three conductor, ~~No. 14 AWG~~ of the appropriate gauge as determined by Canadian Electrical Code, Part I, Table 12; and*

*(c) ~~d~~ provided with an attachment plug ~~cap rated 15 A 125 V~~, suitable for the electrical rating, which complies with CSA C22.2 No. 42 and moulded on to the power supply cord in accordance with CSA C22.2 No. 21.*



The following section was added for the flaming oil test:

[7.26 Flaming oil test for perforated panels \(combustion-resistant enclosures\)](#)

Removed the following sections related to plumbing covered by CSA B45.10:

4.4.2 Isolation of Features Accessible to a Tub Occupant

~~4.4.2.12~~

~~Features forming part of the construction of the tub vessels shall meet the tub vessels structural integrity test requirements of Clause 6.13.~~

~~4.25 Plumbing Fittings and Fixtures~~

~~6.13 Structural Integrity~~

~~6.25 Water Retention Test~~

~~8.5 Receptacle protection~~

Table 5, Protective device test currents: Updated the referenced standards and changed the requirements for overcurrent protective devices

The following Table was added to change the requirements of the leakage current limit and include requirements for DC leakage current

[Table 8, Risk of electric shock limits](#)