

## STANDARD INFORMATION

**Amendment 1:** See updated Effective date in blue below

**This SUN establishes Continued Certification for currently Listed UL 1995 / CSA C22.2 No. 236, UL 484, CSA C22.2 No. 117, UL 474, and CSA C22.2 No. 92 Listing Reports and introduces UL 60335-2-40 / CSA C22.2 No. 60335-2-40 as the superseding standard.**

### Superseded Standard Number:

- UL 1995 / CSA C22.2 No. 236 – 4<sup>th</sup> Edition **Heating and Cooling Equipment**
- UL 1995 / CSA C22.2 No. 236 – 5<sup>th</sup> Edition **Heating and Cooling Equipment**
- UL 484 – 9<sup>th</sup> Edition **Room Air Conditioners**
- CSA C22.2 No. 117 – 2<sup>nd</sup> Edition **Room Air Conditioners**
- UL 474 – 10<sup>th</sup> Edition **Dehumidifiers**
- CSA C22.2 No. 92 – 2<sup>nd</sup> Edition **Dehumidifiers**

**Superseding Standard Number:** UL 60335-2-40 / CSA C22.2 No. 60335-2-40

**Standard Name:** Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers

**Standard Edition and Issue Date:** 4<sup>th</sup> Edition dated December 15, 2022

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** ~~January 1, 2024~~ **January 1, 2025**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

### Impact Statement:

Electric heat pumps, hot water heat pumps, air conditioners, dehumidifiers, and hydronic fan coils units, their maximum rated voltages being not more than 300 V for single phase appliances and 15 000 V for all other appliances certified to UL 1995 / CSA C22.2 No. 236, UL 484, CSA C22.2 No. 117, UL 474, and CSA C22.2 No. 92 are transitioning to UL 60335-2-40 / CSA C22.2 No. 60335-2-40. This change was driven by the need for global harmonization and coverage for alternative refrigerants rather than driven by safety issues with currently certified equipment. Due to this, Intertek is implementing a Continuing Certification Process for existing products certified to these standards.

- For continuation of certification, no action is needed for products certified to UL 484, CSA C22.2 No. 117, UL 474, or CSA C22.2 No. 92. After January 1, 2025, any modifications to the product will require evaluation to UL 60335-2-40 / CSA C22.2 No. 60335-2-40 unless the modification meets the requirements specified during the period from January 1, 2025 to January 1, 2026. Between January 1, 2025 and January 1, 2026, any modification that includes a change in model number, nameplate



ratings, compressor, or is determined to require testing of the product will require evaluation to UL 60335-2-40 / CSA C22.2 No. 60335-2-40. All other modifications to a product, such as a component change with equivalent ratings, may be excluded from updating to UL 60335-2-40 / CSA C22.2 No. 60335-2-40.

- For continuation of certification, appliances certified to UL 1995 / CSA C22.2 No. 236 must meet the following requirements prior to the effective date of January 1, 2025. After January 1, 2025, any modifications to the product will require evaluation to UL 60335-2-40 / CSA C22.2 No. 60335-2-40 unless the modification meets the requirements specified during the period from January 1, 2025 to January 1, 2026. Between January 1, 2025 and January 1, 2026, any modification that includes a change in model number, nameplate ratings, compressor, or is determined to require testing of the product will require evaluation to UL 60335-2-40 / CSA C22.2 No. 60335-2-40. All other modifications to a product, such as a component change with equivalent ratings, may be excluded from updating to UL 60335-2-40 / CSA C22.2 No. 60335-2-40.

**Requirements of UL 1995 and CSA C22.2 No. 236 certifications seeking continuation beyond January 1, 2025:**

1. Prior to January 1, 2025, products certified to UL 1995 must be updated to the 5th Ed.
2. Prior to January 1, 2025, products certified to CSA C22.2 No. 236 rated less than 600 Volts must be certified to the 4<sup>th</sup> Ed. or updated to the 5th Ed. All other products must be updated to the 5<sup>th</sup> Ed.
3. Electric heat pumps, hot water heat pumps, air conditioners, dehumidifiers, and hydronic fan coils units utilizing refrigerants classified A2, A2L, or A3 per ASHRAE 34 shall not be certified to UL 1995 or CSA C22.2 No. 236. Equipment utilizing these refrigerants must be certified to UL 60335-2-40 / CSA C22.2 No. 60335-2-40.



## ADDENDUM – CSA C22.2 No. 236 5th Ed. Required Evaluation and Tests

CLAUSE	VERDICT	COMMENT
		<b>Scope</b>
1		Scope changes for products rated under 600 Volts will now use UL60335-2-40.
		<b>Reference publications</b>
3		Component standard requirements updated and incorporated in this Section.
4	Info	<b>Installation and operating instructions</b>
4.4		Clause was revised to include/cover transcritical system.
4.5(new)		Added requirements for equipment with solar PV systems.
4.6(new)		
4.7(new)		Added requirements for equipment with UV lamp systems.
4.8(new)		
4.9(new)		Added requirements for heat recovery units.
5	Info	<b>Enclosures</b>
5.4 c)(new)		Added requirement for polymeric enclosures exposure to UV-C radiation.
7	Info	<b>Openings in enclosures</b>
7.7(new)		Added requirement for enclosures containing UV radiation lamp systems.
8	Info	<b>Enclosures, doors, and covers</b>
8.5(new)		Added requirements for doors, covers and panels giving access to UV radiation
8.6(new)		lamp systems.
9	Info	<b>Accessibility of parts</b>
9.7-9.12 (new)		Added requirements for units employing UV radiation lamp systems.
15	Info	<b>Mechanical assembly – field assembly</b>
15.2		
15.3(new)		Added requirements for factory specified field installed integral UV systems.
16	Info	<b>Auxiliary devices</b>
16.10(new)		Added requirements for units that are designed for possible installation of duct mounted UV radiation lamp systems.
16.11(new)		Additional requirements for heat recovery unit.
19	Info	<b>Terminal parts and leads for field wiring connections</b>
19.33(new)		
19.34(new)		Additional requirements for equipment intended for cord connection.
19.35(new)		



CLAUSE	VERDICT	COMMENT
19.36		Updated requirement mandating length requirement for ELV circuit leads per clause 19.12
20	Info	<b>Internal wiring</b>
20.6(new) 20.7(new)		Additional requirements for PV source circuit wiring.
20.9(new)		Additional requirement for ampacity determination of adjustable speed drives.
23	Info	<b>Motors</b>
23.12		<b>Added reference to CSA C22.2 No. 0.8 and CSA-ISO/IEC 16085 for compliance</b>
23.13		<b>Added reference to CAN/CSA E60730-1 and CAN/CSA E60730-2-9 for compliance</b>
23.14		<b>Added reference to CSA C22.2 No. 0.14 for compliance.</b>
24	Info	<b>Grounding and bonding</b>
24.13(new)		Additional of equipotential bonding terminal requirements for heat pump pool and spa heaters.
26	Info	<b>Switches and controllers</b>
26.10		Clause was revised to indicate requirements for motor controllers that also serve as disconnects.
26.11 (new)		Additional requirement for controller of a motor-compressor on a unit that uses water as a heat exchange medium.
28	Info	<b>Capacitors</b>
28.3		Additional requirement stating electrolytic types of motor starting capacitors required to comply with supplement SA of UL 810.
30	Info	<b>Electric heaters</b>
30.14		Deleted the Exception for heater elements with switching devices rated for 250,000 endurance cycles; <i>“A heater element circuit that incorporates a switching device controlled by both the automatically resetting temperature-limiting control and a temperature regulating control complies if the switching device is rated for 250,000 endurance cycles.”</i>
30.17-30.25		Clauses were revised to indicate that a manually resettable or replaceable backup protective device is now required (no exceptions).
32	Info	<b>Control circuits</b>
32.8(new)		Addition of new clause to indicate requirements for fuses.
32.10(new)		Addition of new clause to indicate requirements for fuse holders.
32.11(new)		Addition of new clause to indicate requirements for circuit breakers.
34	Info	<b>Refrigerant, hot water, and steam coils</b>
34.6		Clause was revised which makes the clause applicable to pressure vessels which the internal or external design pressure is greater than 15 psig (103.4 kPA gauge).



CLAUSE	VERDICT	COMMENT
34.8		Clause was revised to add letter c) for transcritical systems.
34.9(new)		Addition of new clause to indicate that for transcritical systems the maximum normal working pressure is the marked design pressures for each system pressure range.
34.30(new)		Addition of new clauses to indicate requirements for equipment intended to utilize carbon dioxide (R744) in a transcritical system.
30.34(new)		
34.32		Clauses were revised to include transcritical systems to criteria.
34.33		
<b>Condensing and compressor units employing flammable refrigerants</b>		
35(new)		Addition of new section for condensing and compressor units employing flammable refrigerants intended to be used in refrigerator or freezer applications.
36	Info	<b>Heat pump water heating and heat recovery equipment</b>
36.1		Revision of clause to cover heat recovery equipment.
36.10		Clauses were revised to include criteria for heat recovery units.
36.14		
36.17(new)		Addition of new clauses to indicate requirements for heat recovery units.
36.18(new)		
37(new)		
38(new)		
39(new)		Addition of new sections for requirements of heating and cooling equipment related to PV equipment or utility interactive inverters.
40(new)		
41(new)		
42(new)		
44	Info	<b>Equipment markings</b>
44.3 f)		Addition of "Exceptions" in this clause to indicate marking requirements for motor or motor-compressor controlled by an adjustable speed drive.
44.3 k)		Revision of clause to indicate marking requirements for transcritical systems employing an intermediate pressure section.



CLAUSE	VERDICT	COMMENT
44.3 z), z1), z2) (new)		Addition of marking requirements for equipment with UV radiation lamp systems.
44.13 c), 44.14 a), 44.14 b)		Clauses revised to include marking requirements for motor's MOC and motor – compressor's MRC.
Figure 44.1 Figure 44.2	Info	Referenced exceptions 1 and 2 of 44.3 (f) in LOAD1 and 2 for variable speed equipment
45	Info	<b>Other markings</b>
45.13		Clause was revised to include transcritical systems to criteria.
45.17(new)		
45.18(new)		
45.19(new)		
45.20(new)		Addition of marking requirement for units related to PV equipment or utility interactive inverters.
45.21(new)		
45.22(new)		
45.23(new)		
45.24(new)		Addition of marking requirements for equipment with removable Ultraviolet (UV) radiation doors or barriers
46	Info	<b>General test parameters</b>
		<b>Operation tests</b>
Table 46.1 Table 46.2		Revision of table to add UV leakage test to applicable equipment. Added Class E Insulation Class to table.
Table 46.5		Item D, 1. - Corrected Column 1 Temperature from 305 F to 197 F and corrected Column 2 Temperatures from 177 C to 122 C and 350 F to 251 F.
		<b>Test voltages</b>
Table 46.6		Addition of Note (b) to this table to indicate input testing shall be conducted at nameplate rated voltage.



CLAUSE	VERDICT	COMMENT
53	Info	<b>Electric heater tests</b>
53.13		Added formula to determine when to de-energize heat sources other than refrigerant heat during testing.
68	Info	<b>Accelerated aging tests</b>
68.2(new)		Addition of new clause to indicate test requirements for non-metallic sealing gaskets or protective barrier tape that may be exposed to UV.
71	Info	<b>Fatigue test analysis</b>
71.9		The number of test cycles was revised from 250,000 to 500,000.
71.11		Clause was revised to include transcritical systems to criteria.
71.12		Addition of new clause to indicate requirements for equipment intended to utilize carbon dioxide (R744) in a transcritical system.
71.13		Added low side of transcritical system to letter c) Added letter d) to clause for portions that operate between low side and high side of transcritical system.
71.14		Addition of new clauses to indicate requirements for transcritical systems.
71.15		
74	Info	<b>Regulating relief valve endurance test</b>
74.1		Addition of transcritical system to clause.
75	Info	<b>Leakage current test – cord-connected products</b>
75.2(new)		Addition of new clause to indicate leakage current limits specific for coolant distribution equipment for use in Information Technology Equipment (ITE) rooms.
78	Info	<b>Power supply cords</b>
Table 78.1		Addition of Note 2 and Note 3 to indicate power supply cord length requirements for coolant distribution equipment and systems installed in an ITE room.
78.3(new)		Addition of new clause to indicate power supply cord length requirements for computer room air conditioners
82(new)		<b>Heat pump pool heaters</b> Addition of new section that specifically covers heat pump pool heaters
85	Info	<b>Pressure tests for leakage and strength</b>
Table 85.1		Added R744 Cascade and Transcritical to Table Added notes b) and c)
89(new)		<b>Ultraviolet radiation exposure test</b> Addition of new section that specifically covers UV radiation exposure.



CLAUSE	VERDICT	COMMENT
90(new)		<b>Controls – end product test parameters</b> Addition of new section that specifically covers controls.

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