STANDARDS UPDATE NOTICE (SUN)
ISSUED: August 11, 2023

STANDARD INFORMATION

Standard: CSA C22.2 No. 107.1
Standard ID: Power Conversion Equipment [CSA C22.2#107.1:2016 Ed.4+U1]
Previous Standard ID: Power Conversion Equipment [CSA C22.2#107.1:2016 Ed.4]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **January 1, 2027**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes: CSA C22.3 No. 9 has been introduced to evaluate interactive inverters and PCE. Specific details of new/revised requirements are found in table below.

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		Additions to existing requirements are underlined and deletions are shown ~~lined out~~ below.
14	info	**Interactive inverters and PCE**
14.1		Clause 14 applies to interactive PCE as defined in Clause 3, regardless of whether the input to the PCE is ac or dc (an interactive inverter). Inverters or PCE that implement a closed transition, where the inverter AC output is only temporarily paralleled with the grid, are not considered to be interactive.
14.2		***New section added;*** **General** Interactive inverters or PCE that are within the scope of CSA C22.3 No. 9 shall comply with the product- level grid interconnection requirements for inverters, and the applicable type tests and production tests in CSA C22.3 No. 9. See standard for details.
14.4	Info	**Tests**
14.4.1		***New clause added;*** **General** Interactive inverters or PCE shall comply with the applicable tests in this Clause, and with a) the type testing and production testing in CSA C22.3 No. 9; or b) for inverters or PCE in accordance with Clause 14.2.2where compliance with an interconnection standard is evaluated, the type testing and production testing in the applied interconnection standard.
14.4.3		***New clause added;*** **Anti-islanding test** Interactive inverters or PCE shall comply with anti-islanding test requirements as follows: a) for inverters in accordance with Clause 14.2.3.1or with 14.2.3.2.1a), the unintentional islanding (anti-islanding) testing in CSA C22.3 No. 9; or b) for inverters in accordance with Clause 14.2.3.2.1b), the anti-islanding testing in the applied interconnection standard.

CLAUSE	VERDICT	COMMENT
14.4.6	Info	**AC output short circuit current contribution tests**
14.4.6.1		***New clause added;*** Interactive inverters or PCE shall comply with AC output short circuit current contribution test and reporting requirements as follows: a) for inverters or PCE evaluated to CSA C22.3 No. 9, the AC output short circuit current contribution test and reporting requirements in CSA C22.3 No. 9; b) for inverters in accordance with another interconnection standard, as allowed by Clause 14.2.2, the AC output short circuit current contribution test and reporting requirements in the applied interconnection standard; or c) for inverters not evaluated to an interconnection standard, as allowed by Clause 14.2.2, the AC output short circuit current contribution test and reporting requirements in Clauses 14.4.6.2–14.4.6.8and 14.5.2.5.
14.5	Info	**Markings**
14.5.5	Info	**Product markings**
14.5.1.1		***New clause added;*** The grid interaction evaluation status of the PCE shall be marked in accordance with Item a) or b): a) For interactive inverters or PCE according to CSA C22.3 No. 9, depending on the classification in accordance with Clause 14.2.1, one of the following markings in accordance with CSA C22.3 No. 9 shall appear on the PCE where readily visible after installation: “Grid Support Interactive Inverter – CSA C22.3 No. 9 - Basic” or “Grid Support Interactive Inverter – CSA C22.3 No. 9 - Supplemental” b) For interactive inverters or PCE according to Clause 14.2.2, not being evaluated to CSA C22.3 No. 9, the following marking shall appear where readily visible after installation: “Not evaluated to CSA C22.3 No. 9. Refer to manual. Provided with anti-islanding protection” Note: Other standards, such as UL 1741 and IEEE 1547, require different terms to be marked, indicating utility interactive classification or capabilities. In cases where a product is subject to such additional similar markings beyond the marking in this Clause, the content and/or layout design should make it clear which terms are associated with which standard(s).
14.5.2	Info	**Installation, operating, and servicing instructions**
14.5.2.2		***New clause added;*** Interactive inverters or PCE being evaluated to CSA C22.3 No. 9 according to Clause 14.2.1, or the option in Clause 14.2.2, shall comply with the installation, operating, and servicing instruction requirements of CSA C22.3 No. 9.

CLAUSE	VERDICT	COMMENT
14.5.2.3		***New clause added;*** For interactive inverters or PCE according to Clause 14.2.2not using CSA C22.3 No. 9, the instructions shall a) inform the installer that the inverter or PCE is not approved to CSA C22.3 No. 9; b) inform the installer that the wires owner shall be consulted to determine applicable utility interconnection requirements; and c) where compliance with another interconnection standard of the manufacturer's choice is included, the installation instructions shall include reference to the interconnection standard used (e.g., publisher's name, standard number, and edition), and shall include any installation, operating, and servicing instruction requirements of the selected standard.
14.5.2.4		The installation instructions shall contain a table presenting the ac output short-circuit contribution data of the interactive inverter or PCE equal to or greater than that determined by the tests in Clause 14.4.6. This table shall present the following current and time data: a) short circuit current — initial: amps (RMS) and duration of 16.7 ms or 1 cycle; b) short circuit current — maximum: amps (peak) and duration (ms); and c) short circuit current — breaking: amps (RMS) and duration (ms). Where phase-to-ground testing is required by Clause 14.4.6.5, the data provided shall also include the phase-ground results. The data shall be accompanied by an explanation of the meanings of the terms in Items a) – c), aligned with the definitions in Clause 3.
14.5.2.7		For non-isolated interactive inverters or PCEs that must be used with an external isolation transformer, the installation instructions shall specify the voltage with respect to ground (common-mode voltage) present on the AC link circuit between the inverter or PCE and the external transformer. The instructions shall also specify that a) any equipment or conductors connected to that AC link must be rated for the common mode voltage present, unless the common-mode voltage is removed by an isolation transformer between the AC link and the equipment in question; and b) the transformer winding(s) connected to the AC link shall be rated for the common mode voltage. Note: In systems using a non-isolated inverter with an external isolation transformer, the AC connection between the inverter and the external transformer is often un-grounded, to allow for PV array functional grounding options. In that case, the AC link may have a significant common-mode voltage (i.e., voltage to ground) imposed on it by the architecture of the inverter and the PV array.