IEC TS 63217

Edition 1.0 2021-11

TECHNICAL SPECIFICATION

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Utility-interconnected photovoltaic inverters – Test procedure for over voltage ride-through measurements

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 27.160

ISBN 978-2-8322-1051-2

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UTILITY-INTERCONNECTED PHOTOVOLTAIC INVERTERS – TEST PROCEDURE FOR OVER VOLTAGE RIDE-THROUGH MEASUREMENTS

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The text of this Technical Specification is based on the following documents:

Draft	Report on voting
82/1926/DTS	82/1960/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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UTILITY-INTERCONNECTED PHOTOVOLTAIC INVERTERS – TEST PROCEDURE FOR OVER VOLTAGE RIDE-THROUGH MEASUREMENTS

1 Scope

This document provides a test procedure for evaluating the performance of Over Voltage Ride-Through (OVRT) functions in inverters used in utility-interconnected photovoltaic (PV) systems.

This document is most applicable to large systems where PV inverters are connected to utility high voltage (HV) distribution systems. However, the applicable procedures may also be used for low voltage (LV) installations in locations where evolving OVRT requirements include such installations, e.g. single-phase or 3-phase systems.

Fundamentally, the assessed OVRT performance is valid only for the specific configuration and operational mode of the inverter under test. Separate assessment is required for the inverter in other factory or user-settable configurations, as these may cause the inverter OVRT response to behave differently.

The measurement procedures are designed to be as non-site-specific as possible, so that OVRT characteristics measured at one test site, for example, can also be considered valid at other sites.

This document is for testing of PV inverters, though it contains information that may also be useful for testing of a complete PV power plant consisting of multiple inverters connected at a single point to the utility grid. It further provides a basis for utility-interconnected PV inverters numerical simulation and model validation.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61400-21-1:2019, *Wind energy generation systems – Part 21-1: Measurement and assessment of electrical characteristics – Wind turbines*

IEC TS 61836:2016, *Solar photovoltaic energy systems – Terms, definitions and symbols*

IEC TS 63106-1:2020, *Simulators used for testing of photovoltaic power conversion equipment – Recommendations – Part 1: AC power simulators*

IEC TS 63106-2:2022, *Simulators used for testing of photovoltaic power conversion equipment – Recommendations – Part 2: DC power simulators*