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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62910, which is a technical specification, has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
82/884/DTS	82/1005/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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UTILITY-INTERCONNECTED PHOTOVOLTAIC INVERTERS – TEST PROCEDURE FOR LOW VOLTAGE RIDE-THROUGH MEASUREMENTS

1 Scope

This Technical Specification provides a test procedure for evaluating the performance of Low Voltage Ride-Through (LVRT) functions in inverters used in utility-interconnected PV systems.

The technical specification is most applicable to large systems where PV inverters are connected to utility HV distribution systems. However, the applicable procedures may also be used for LV installations in locations where evolving LVRT requirements include such installations, e.g. single-phase or 3-phase systems.

The assessed LVRT 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 LVRT response to behave differently.

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

This technical specification 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 inverter numerical simulation and model validation.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61400-21:2008, *Wind turbines – Part 21: Measurement and assessment of power quality characteristics of grid connected wind turbines*

3 Terms, definitions, symbols and abbreviations

3.1 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols apply.

3.1.1
drop depth
magnitude of voltage drop during a fault or simulated fault, as a percentage of the nominal supply voltage

3.1.2
double drop
sudden decline of the nominal voltage to a value below 90 % of the voltage of PCC, followed after a short time by a voltage recovery, which happened twice. Voltage changes which do not