IEEE 1547.1 Test Tools

IEEE 1547.1-2020 and UL 1741 SB have driven the DER industry to formally standardize its communications interactions with grid operators.

A COMPLETE SOLUTION

QualityLogic's complete IEEE 1547.1 Test Tool solution includes testing for IEEE 2030.5, SunSpec Modbus 700, and DNP3, all required interoperability tests, type tests, and the automation of the equipment required to perform the IEEE 1547.1 based tests.
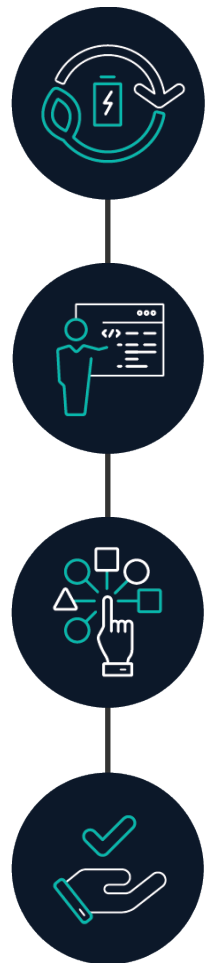
The most important value of the toolset is the automation of the IEEE 1547.1/ UL 1741 testing process. Current UL 1741SA testing can take weeks of time to complete all the set-up, testing, and analysis required and the updated UL 1741 SB testing is expected to take even more additional time. By automating much of the process using QualityLogic's 1547.1 test tools, significant time savings can be realized and your product can get to market faster.

1547.1 COMPLIANCE TESTING SOLUTION COMPONENTS

Interoperability (Section 6 of IEEE 1547.1-2020)

IEEE 1547-2018 designates three acceptable protocols that can be used the validate the DER system for interoperability: IEEE 2030.5, IEEE 1815 (DNP3) or SunSpec Modbus.

There are several categories of interoperability tests, including Nameplate Data Tests, Configuration Information Tests, Monitoring Information Tests, and Management Information Tests. QualityLogic's 1547.1 Test Tools automate all of the Interoperability testing for all three protocols.
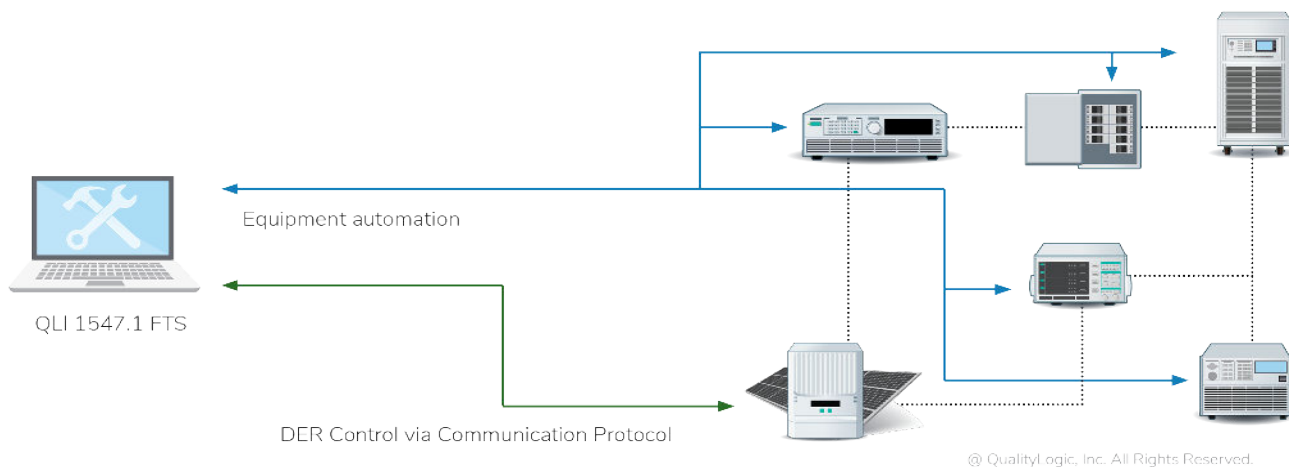
Type Tests (Section 5 of the IEEE 1547.1–2020)

The 1547.1 Type tests are defined for the required grid support functions: Constant Power Factor Mode, Voltage-Reactive Power Mode, Active Power-Reactive Power Mode, Constant Reactive Power Mode, Voltage-Active Power Mode, Voltage Trip Test, Frequency Trip Test, Frequency Droop Test, Enter Service and Cease to Energize and Trip Tests, Limit Maximum Active Power Test. QualityLogic's 1547.1 Test Tools automate all of the Type tests required for Interoperability testing as well as additional Type tests such as the Ride-Through tests. The automation is designed to support different sets of jurisdiction-specific test parameters.

Equipment Management Module

QualityLogic 1547.1 FTS automates the DER protocol messaging to the smart inverters and remotely manages the various test equipment required to perform fully automated 1547.1 based tests.

QLI 1547.1 FTS

Equipment automation

DER Control via Communication Protocol

KEY FEATURES

DER Protocols – Supports the 2030.5, SunSpec Modbus, and DNP3 communications required by each of the IEEE 1547.1 Interoperability tests with the target DER.

Test Equipment Automation – Each 1547.1 FTS test case remotely controls and monitors the required Test Equipment. The Test Tools support a growing list of AC and DC simulators and data capture equipment. New simulation or data capture equipment that support the standard SCPI interface can be easily added.

End to End Testing – 1547.1 FTS performs end to end testing where the DER is configured and managed through the selected DER Protocol while the power-based testing and verification is performed in an automated fashion.

Data Collection – Precise data collection from the data analyzer/collector is key to measuring and analyzing the DER device's behavior based on the IEEE 1547.1 tests.

Customizable 1547.1 Test Values – Enables the user to modify the test values that are used during testing, such as the values that are used during each grid code test.

Results Analysis Support – We collect the data from power analyzer and oscilloscope so that user can analyze the data to make the conclusion.

TRAINING & SUPPORT

Protocol and Certification Training

Our IEEE 1547.1 training workshop provides attendees with a deeper understanding of the standard, especially the new Interoperability requirements. Students will learn the technical skills needed to conduct both interoperability and type testing as defined in UL 1741 SB. And students will learn how to automate UL 1741 SB testing with QualityLogic's IEEE 1547.1 Test Tools.

Technical and Integration Support.

- Technical Support Contracts can be used for software install assistance, integration assistance, and questions regarding the interpretation and meaning of the protocol technical requirements are answered within a day
- Rest API Integration – enables integration with existing UL 1741 test systems

Discover why so many inverter manufacturers, companies, and labs rely on QualityLogic's DER protocol expertise. Contact us today.

Headquarters
9576 West Emerald St
Boise, ID 83704

California
2245 First Street, Suite 103
Simi Valley, CA 93065

Oklahoma
4045 NW 64th Street, Suite 306
Oklahoma City, OK 73116

QualityLogic