

UL Solutions Test Report Summary

UL Solutions Demonstrates Comparable Results Between Keysight PHIL and Traditional IEEE 1547 Test

Keysight PHIL Anti-Islanding Test vs. Traditional RLC Load Banks

Keysight enlisted UL Solutions to compare two IEEE 1547.1-2020 unintentional-islanding test methods on the same DER: a traditional, manually-tuned physical RLC load bank (Method A) and Keysight's automated PHIL-based approach using the SL1200 Series Grid Emulator and SL1221A PHIL Anti-Islanding Software (Method B).

Why have UL Solutions perform these tests?

Keysight's PHIL-based method is a new, unique approach to anti-islanding test with improvements so significant, potential users / customers might be skeptical of Keysight's claims. As an independent third-party and world leader in certification and test, UL Solutions test results are recognized and trusted around the world removing doubt in Keysight's groundbreaking method of test.

What UL Solutions Tested

- The same three-phase DER with the same parameters for both methods.
- Five representative IEEE 1547.1 Category B unintentional-islanding cases were used: 1B, 4B, 5B, 7B, and 9B as a representative set of the IEEE 1547 test requirements.
- The cases covered different power levels, reactive power modes, active power modes, and load conditions from 95% to 105%.

What UL Solutions Found

- Both methods are valid IEEE 1547.1-2020 test approaches.
- Side-by-side test data shows similar results between traditional RLC load-bank method and Keysight's PHIL-based method.
- Automated PHIL tuning is reasonably expected to improve precision and repeatability.
- Both methods met the IEEE 1547 clearing-time requirement.
- PHIL automation reduced test execution from weeks to less than one day.

You can also download the full [UL report](#) here.

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