



Phocos Any-Cell IEC 61427-1 Lab Test Results

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This test report covers the results of the tests performed on the Phocos Any-Cell ESS-L-5kWh-48V up to three full Stage A and two full Stage B cycles - a total of 450 loops. The Any-Cell shows a decrease of 2.90% from the 1st Reference Performance Test (RPT) based on the voltage limits of 50V - 55.5V.

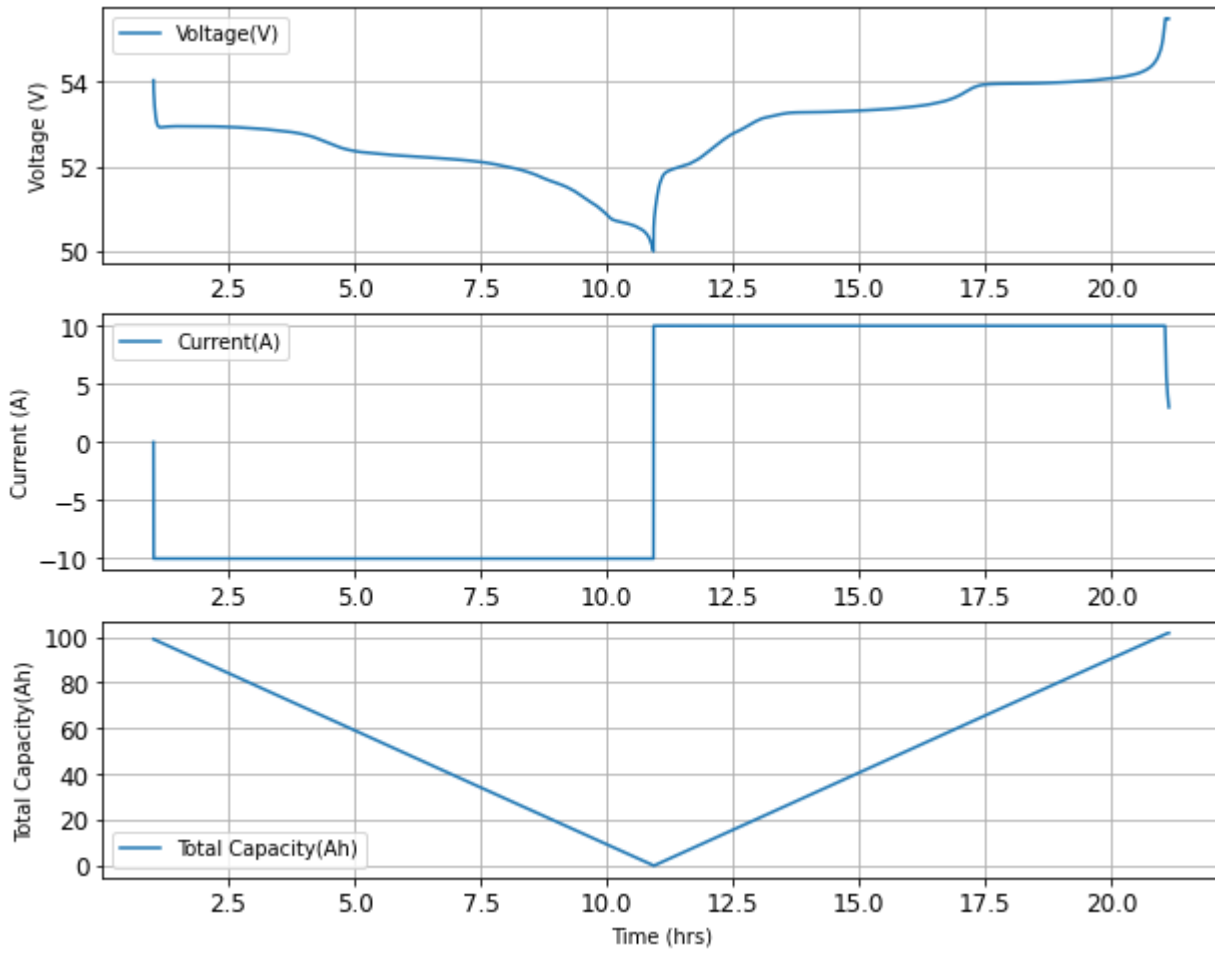
Section 1 summarizes the results from the RPTs along with plots of both the RPTs and the charge/discharge loops. Section 2 describes the test procedure, section 3 shows the ambient temperature conditions in ReJoule's lab, section 4 is a summary of the Any-Cell performance in relation to IEC 61427.

1. Reference Performance Test Results Summary

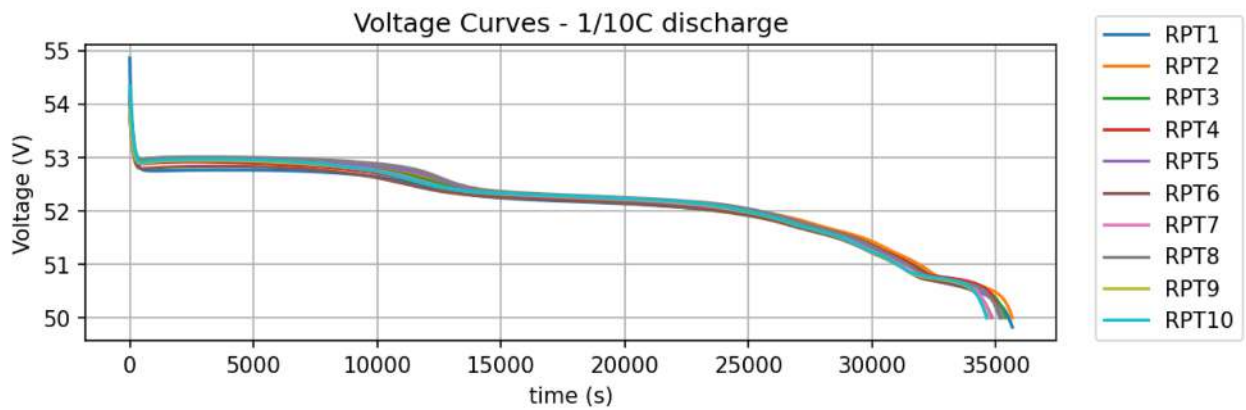
A reference test will be performed to measure the discharge capacity of the Any-Cell at regular intervals every 50 loops. The table below shows the results from the initial reference point to the conclusion of the test.

| Stage | Loop # | RPT | Date | Capacity (Ah) | % drop | Volt (V) max/min |
|-------|--------|-----|---------------|---------------|--------|------------------|
| 0 | 0 | 1 | Feb 21, 2022 | 98.87 | - | 55 / 50 |
| 1-A | 50 | 2 | Mar 16, 2022 | 98.88 | 0% | 55.5 / 50 |
| 1-B | 100 | 3 | Mar 26, 2022 | 98.12 | 0.76% | 55.5 / 50 |
| 1-B | 150 | 4 | Apr 8, 2022 | 97.64 | 1.25% | 55.5 / 50 |
| 2-A | 200 | 5 | Apr 29, 2022 | 97.70 | 1.18% | 55.5 / 50 |
| 2-B | 250 | 6 | May 17, 2022 | 96.57 | 2.33% | 55.5 / 50 |
| 2-B | 300 | 7 | May 31, 2022 | 96.43 | 2.46% | 55.5 / 50 |
| 3-A | 350 | 8 | June 20, 2022 | 97.46 | 1.43 % | 55.5 / 50 |
| 3-B | 400 | 9 | July 5, 2022 | 96.04 | 2.86 % | 55.5 / 50 |
| 3-B | 450 | 10 | July 19, 2022 | 96.01 | 2.90 % | 55.5 / 50 |

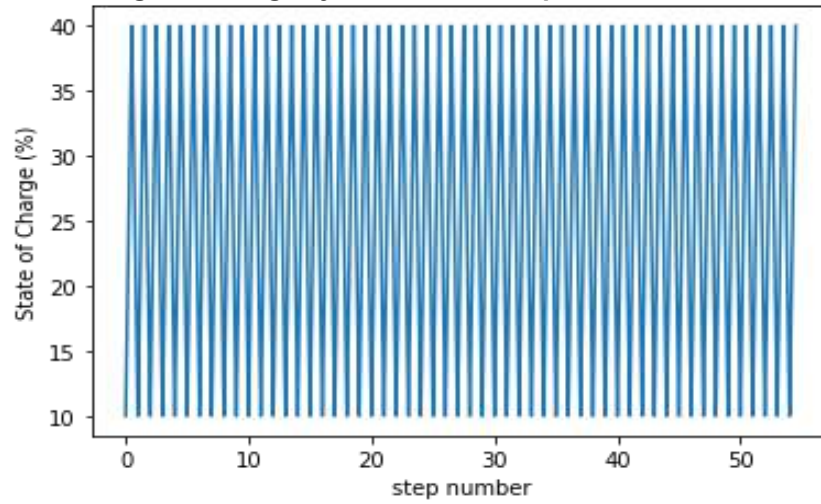
1.1. Reference Performance Test Curves



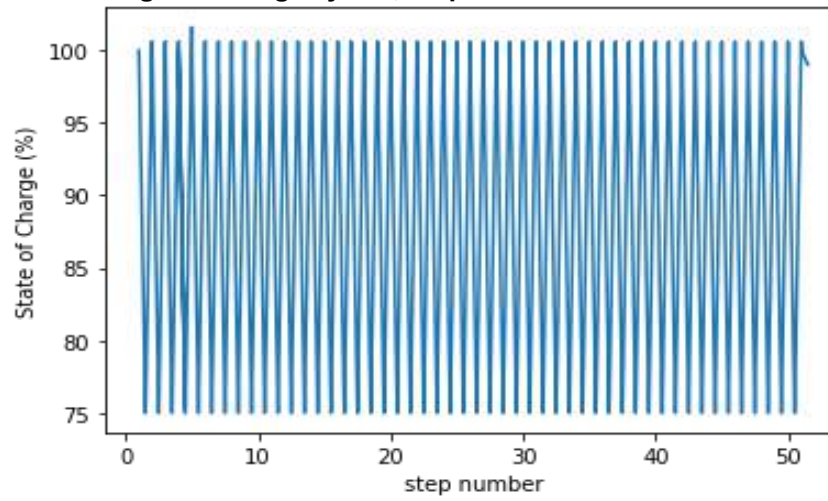
1.2. Progression of voltage curves over course of reference performance tests



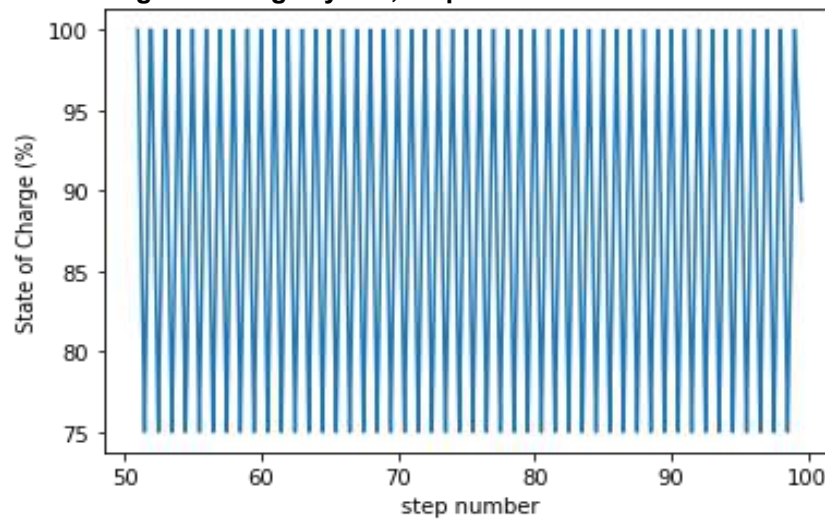
1.3. Stage A repeated charge-discharge cycles, total 50 loops:



1.4. Stage B repeated charge-discharge cycles, loops 1-50:



1.5. Stage B repeated charge-discharge cycles, loops 51-100:



2. Testing Procedure

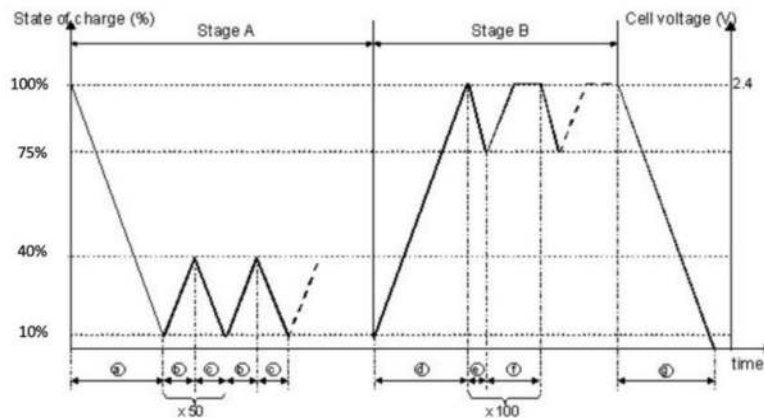
The testing plan is based on the IEC 61427 standards which determine life expectancy of batteries in PV systems. The testing for Off-Grid includes testing the Any-Cell at 40°C.

The details of the testing plan are in the document provided by Phocos. The plan is reproduced below:

| <i>Stage A: Shallow Cycling at low SOC</i> | | | |
|--|---------------------|------------------|-------------|
| Step | Discharge time, hrs | Charge time, hrs | Current, A |
| A | 9 | | 0.1 It(A) |
| B | | 3 | 0.103 It(A) |
| C | 3 | | 0.1 It(A) |

| <i>Stage B: Shallow Cycling at high SOC</i> | | | |
|---|---------------------|------------------|-------------|
| Step | Discharge time, hrs | Charge time, hrs | Current, A |
| A | 2 | | 0.125 It(A) |
| B | | 6 | 0.1 It(A) |

Cycling Phase Procedure @ 40°C



- 90% discharge at 0.1 It(A) (9 hours)
- 30% recharge at 0.103 It(A) (3 hours)
- 30% discharge at 0.1 It(A) (3 hours)

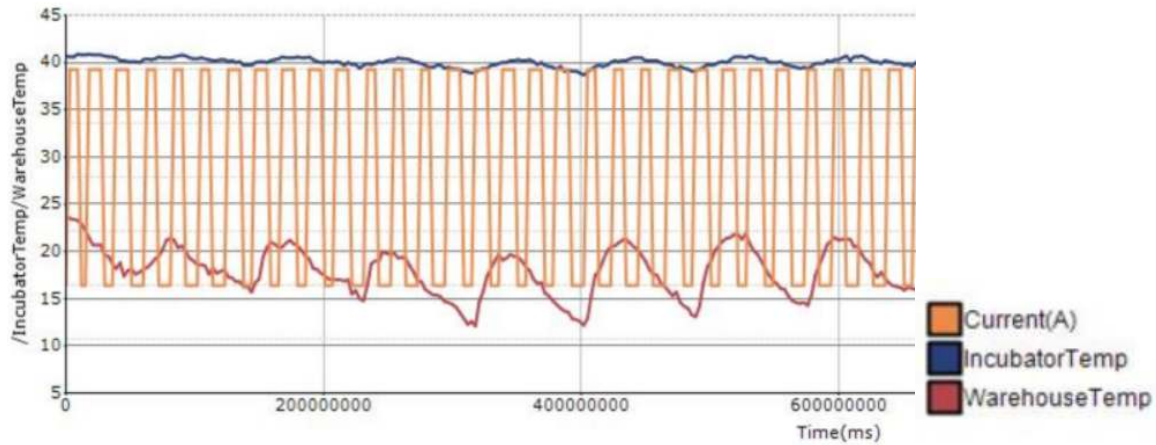
Repeat b) and c) 49 times

- full recharge at 0.1 It(A)
- 25% discharge at 0.125 It(A) (2 hours)
- recharge at 0.1 It(A) for 6 hours

Repeat e) and f) 99 times

- Cooldown battery to ambient temperature. Measure residual capacity by discharging at I10 until cut-off

3. Test Setup Data



Sample data zoomed out over many days, showing the Any-Cell at 40 ± 3 °C chamber temperature while warehouse temperature fluctuates day by day

4. Summary of IEC 61427 Standard Performance

The Phocos Any-Cell ESS-L-5kWh-48V lost only 2.90% of the initial measured discharge capacity after 3 successive rounds of IEC 61427 defined cycles: the test plan provided by Phocos follows the IEC requirement of 50 shallow cycles at low SOC (10-40%) followed by 100 cycles at high SOC (75-100%) at the required controlled temperature of 40C.

One IEC 61427 cycle (stage A + stage B) represents the equivalent of 1 year of life in a PV application. Therefore, according to IEC61427, the Any-Cell ESS-L-5kWH-48V is expected to lose less than 3% of its original capacity after 3 years in service. End of life for the Any-Cell (80% of original capacity) was not reached in the IEC 61427 testing but is expected to occur well after 10 years in service based on the results of the 3 applied IEC 61427 cycles.