BATTERY TEST REPORT

48V 20Ah Battery Pack
CHARGE & DISCHARGE TEST

Genuine Samsung INR21700-50G Cells · 13S4P Configuration

Measured discharge 19.51 Ah · 97.5% of rated capacity · Verdict: PASS

DOCUMENT TYPE	Charge & Discharge Test Report
TEST SAMPLE	BOOANT 48V 20Ah Lithium-ion Battery Pack
REPORT NO.	BOOANT-TR-20261022-1-002-2

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48V 20Ah Lithium-ion Battery Pack (13S4P) · Genuine Samsung INR21700-50G Cells

1. Test Information

Report No.	BOOANT-TR-20261022-1-002-2
Test sample	BOOANT 48V 20Ah lithium-ion battery pack — genuine Samsung INR21700-50G cells, 13S4P configuration (52 cells), rated energy 960 Wh, 54.6V full-charge voltage
Pack serial no.	Not recorded
Test date	22 October 2026
Test window	11:10:39 to 19:13:28 (8 h 02 min total, incl. rests)
Test equipment	PESKOE FD-0901B Battery High-Current Tester, channel 1-002-2
Sampling	Voltage / current / capacity / energy logged every 1 s (28972 records)
Report issued	22 October 2026

2. Test Procedure

Step	Operation	Setpoints	Purpose
1	Constant-current discharge	15A, cut-off 37.0V	Discharge the as-received pack to empty
2	Rest	5 min	Voltage stabilisation
3	CC/CV charge	5A to 54.6V, CV taper to 1A	Full charge from empty
4	Rest	5 min	Voltage stabilisation
5	Constant-current discharge	15A, cut-off 37.0V	Full-capacity discharge test
6	Rest	5 min	Voltage stabilisation
7	CC/CV charge (partial)	5A, 50.0V limit	Partial recharge after test

3. Key Results — Full Discharge (Step 5)

Rated capacity	20.00 Ah (960 Wh)	**Measured vs rated**	**97.5% capacity · 95.2% energy**
Discharge capacity	**19.51 Ah**	**Discharge energy**	**914.2 Wh**
Charge capacity (Step 3)	19.31 Ah	**Charge energy (Step 3)**	963.4 Wh
Average discharge voltage	46.9 V	**Median discharge voltage**	47.2 V
Discharge current	15A constant (approx. 0.8C)	**Round-trip energy efficiency**	94.9%

VERDICT: PASS — measured discharge capacity 19.51 Ah = 97.5% of the 20 Ah rating (acceptance criterion: ≥ 95% of rated capacity).

The pack was charged from empty to 54.6V (19.31 Ah accepted), rested, then discharged at a constant 15A down to the 37.0V cut-off. It delivered 19.51 Ah and 914.2 Wh, which is 97.5% of its 20Ah rated capacity, with an average

discharge voltage of 46.9V. The discharge curve (Section 5) shows a flat, stable voltage plateau with no abnormal drops, indicating healthy, well-matched cells.

4. Step-by-Step Results

Step	Operation	Avg current	Capacity (Ah)	Energy (Wh)	End voltage	Duration
1	CC discharge	15.0 A	4.886	203.0	36.51 V	0:19:32
2	Rest	—	—	—	40.24 V	0:04:59
3	CC/CV charge	4.8 A	19.313	963.4	54.60 V	3:59:40
4	Rest	—	—	—	54.39 V	0:05:00
5	CC discharge	15.0 A	19.508	914.2	36.47 V	1:18:01
6	Rest	—	—	—	39.60 V	0:04:59
7	CC/CV charge (partial)	4.9 A	10.575	497.0	50.00 V	2:10:34

Capacity and energy are the step totals recorded by the test system. Rest steps carry the running counters forward and are shown as —.

5. Test Curves

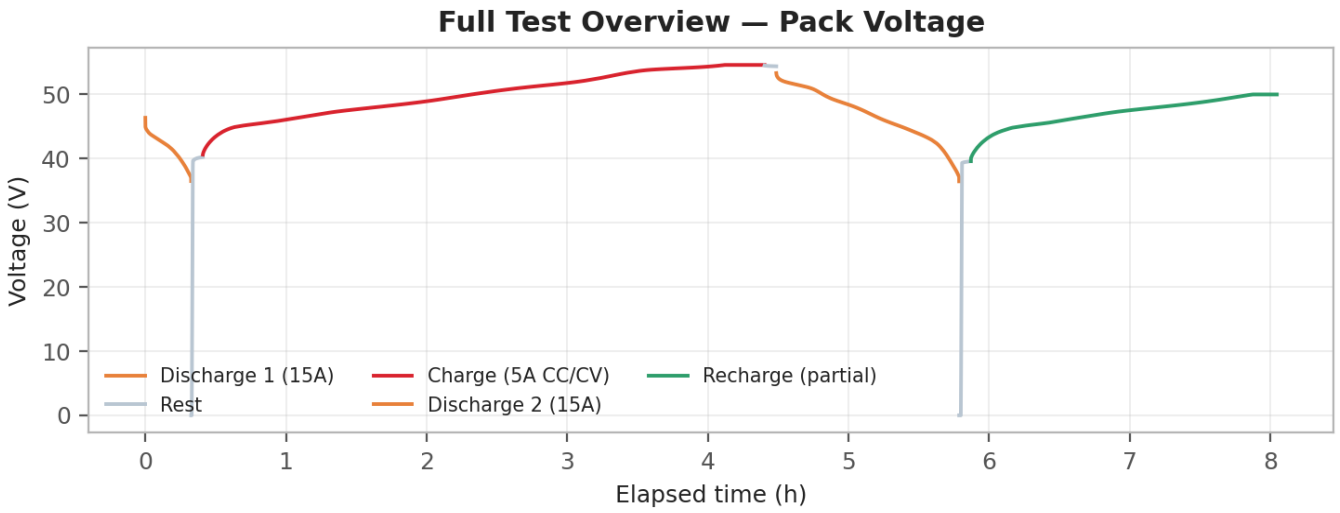


Figure 1 — Pack voltage across the full test sequence (initial discharge, full charge, capacity discharge, partial recharge).

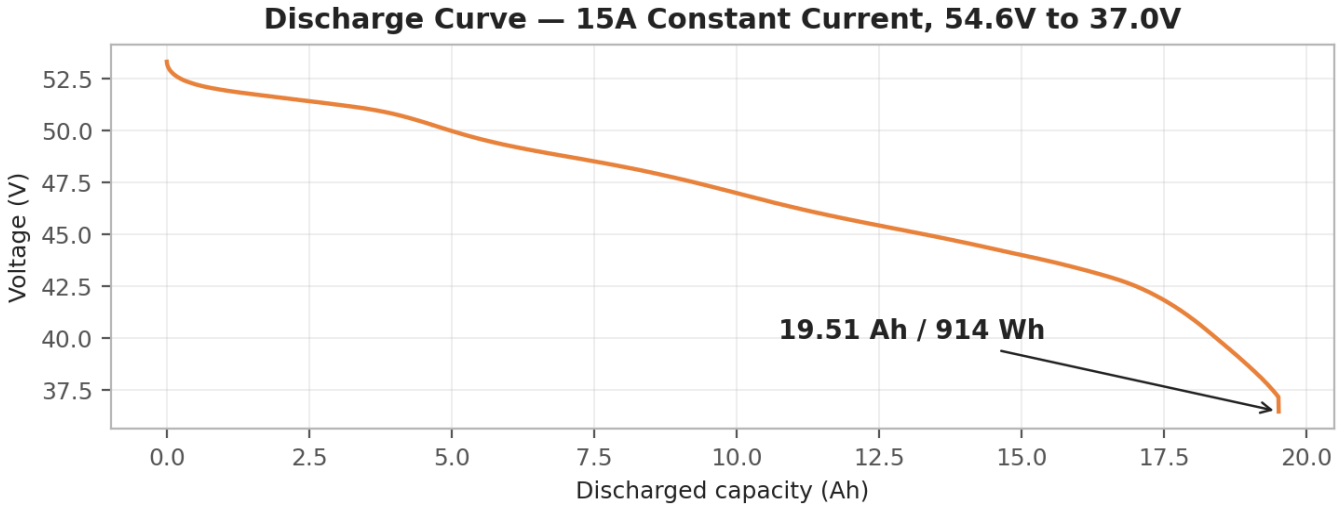


Figure 2 — Step 5 discharge curve: voltage against discharged capacity at 15A constant current.

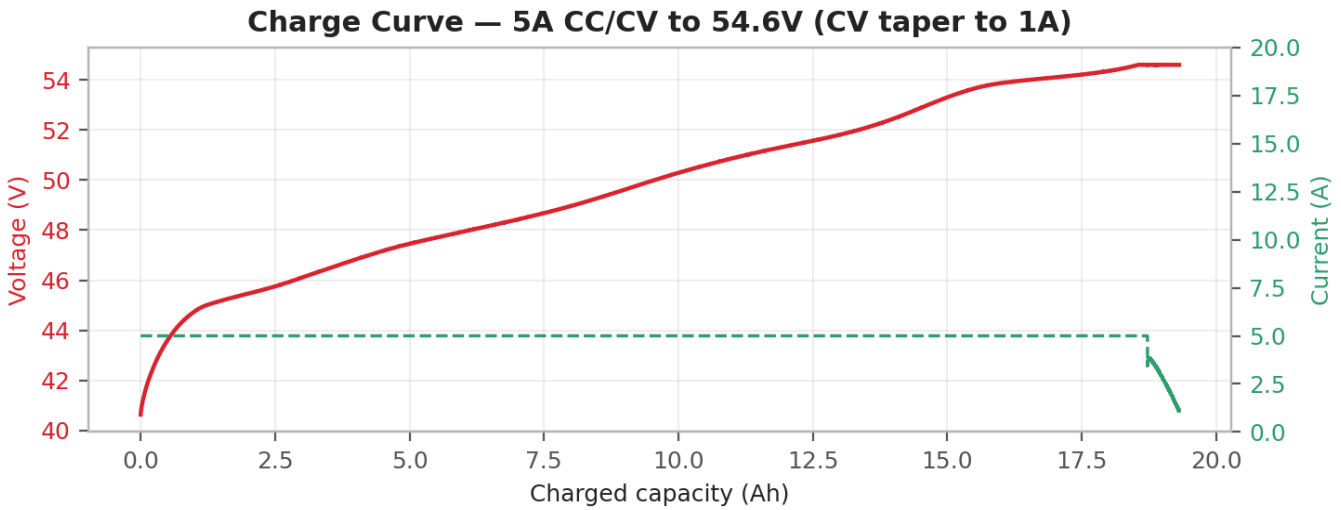


Figure 3 — Step 3 charge curve: voltage and current against charged capacity. Current tapers in the CV phase near 54.6V.

6. Notes

1. All values in this report are taken directly from the test system data export of 22 October 2026 (channel 1-002-2); no values have been adjusted or estimated.
2. Step 1 discharged the pack from its as-received state (4.89 Ah) and is not a full-capacity measurement. The rated full-discharge result is Step 5.
3. The 37.0V discharge cut-off and 54.6V full-charge voltage correspond to the pack's 13S4P configuration and its BMS operating window.
4. This report documents a single bench test of one pack and is intended as production quality evidence.
5. This is an in-house bench test report prepared by BOOANT from the test system data export. It is not a third-party laboratory certificate.

7. Measurement Context

This discharge ran at 15A, which for a 13S4P pack is 3.8A per cell (0.8C), down to the 37.0V pack cut-off (2.85V per cell). Delivered capacity per cell was 4.88Ah. The pack's rated capacity is based on the cells' nameplate capacity of 5.00Ah per cell, which cell manufacturers specify at a low reference discharge rate (0.2C). Delivered capacity decreases as the discharge rate increases and as the cut-off voltage rises, so a capacity measured at 0.8C is not directly comparable with the low-rate nameplate figure.