BATTERY TEST REPORT

48V 30Ah Battery Pack
CHARGE & DISCHARGE TEST

Genuine Samsung INR21700-50G Cells · 13S6P Configuration

Measured discharge 29.28 Ah · 97.6% of rated capacity · Verdict: PASS

DOCUMENT TYPE	Charge & Discharge Test Report
TEST SAMPLE	BOOANT 48V 30Ah Lithium-ion Battery Pack
REPORT NO.	BOOANT-TR-20260924

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48V 30Ah Lithium-ion Battery Pack (13S6P) · Genuine Samsung INR21700-50G Cells

1. Test Information

Report No.	BOOANT-TR-20260924
Test sample	BOOANT 48V 30Ah lithium-ion battery pack — genuine Samsung INR21700-50G cells, 13S6P configuration (78 cells), rated energy 1,440 Wh, 54.6V full-charge voltage
Pack serial no.	Not recorded
Test date	24 September 2026
Test window	08:42:03 to 16:07:16 (7 h 25 min total, incl. rests)
Test equipment	PESKOE FD-0901B Battery High-Current Tester
Sampling	Voltage / current / capacity / energy logged every 30 s (897 records)
Report issued	24 September 2026

2. Test Procedure

Step	Operation	Setpoints	Purpose
1	CC/CV charge	8A to 54.6V, CV taper to 1A	Top-up charge to full
2	Rest	5 min	Voltage stabilisation
3	Constant-current discharge	30A, cut-off 37.0V	Full-capacity discharge test
4	CC/CV charge (partial)	5A, 50.0V limit	Partial recharge after test

3. Key Results — Full Discharge (Step 3)

Rated capacity	30.00 Ah (1,440 Wh)	**Measured vs rated**	**97.6% capacity · 94.1% energy**
Discharge capacity	**29.28 Ah**	**Discharge energy**	**1,355.4 Wh**
Top-up charge	21.60 Ah	**Top-up energy**	1,110.2 Wh
Average discharge voltage	46.3 V	**Median discharge voltage**	46.6 V
Discharge current	30A constant (approx. 1.0C)	**Round-trip energy efficiency**	n/a (see Note 2)

VERDICT: PASS — measured discharge capacity 29.28 Ah = 97.6% of the 30 Ah rating (acceptance criterion: ≥ 95% of rated capacity).

The pack arrived partially charged (46.8V) and was topped up to 54.6V (21.60 Ah accepted), rested, then discharged at a constant 30A down to the 37.0V cut-off. It delivered 29.28 Ah and 1,355.4 Wh (97.6% of its 30Ah rating), with an average discharge voltage of 46.3V. The discharge curve (Section 5) shows a flat, stable plateau with no abnormal drops.

4. Step-by-Step Results

Step	Operation	Avg current	Capacity (Ah)	Energy (Wh)	End voltage	Duration
1	CC/CV charge	7.4 A	21.598	1,110.2	54.61 V	2:55:02
2	Rest	—	—	—	54.43 V	0:05:00
3	CC discharge	29.9 A	29.281	1,355.4	37.00 V	0:58:34
4	CC/CV charge (partial)	4.7 A	16.334	766.0	50.01 V	3:26:30

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

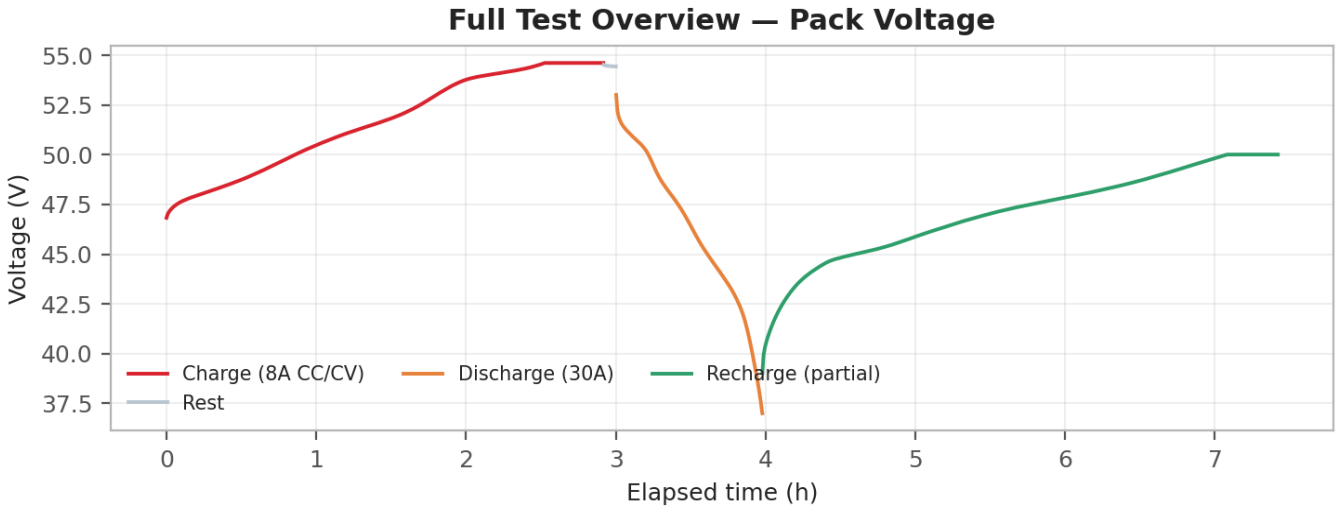


Figure 1 — Pack voltage across the full test sequence (top-up charge, capacity discharge, partial recharge).

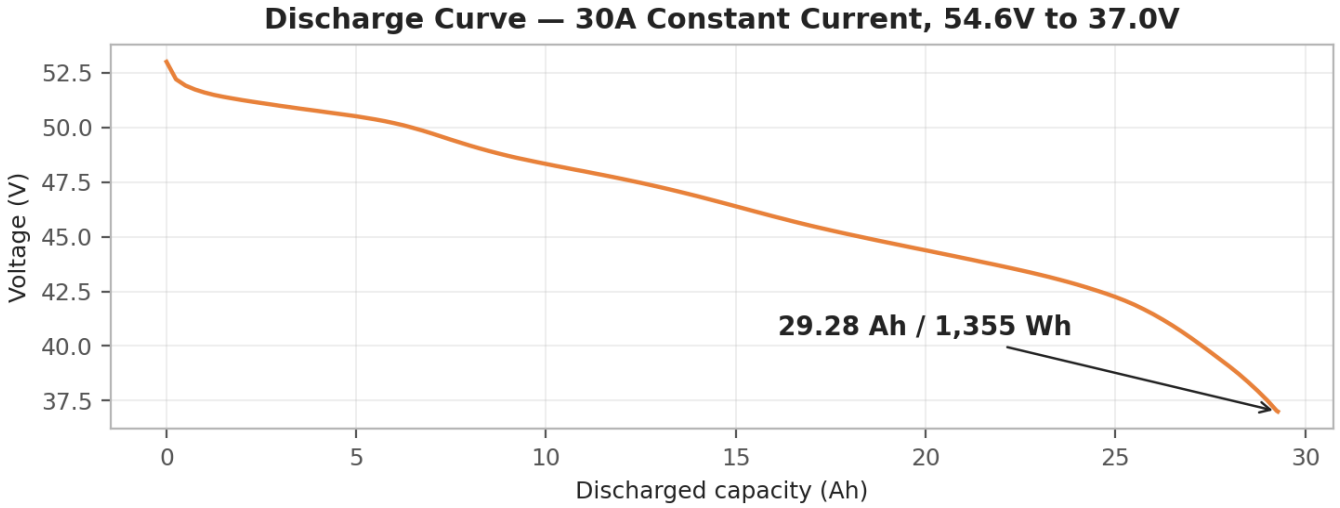


Figure 2 — Step 3 discharge curve: voltage against discharged capacity at 30A constant current.

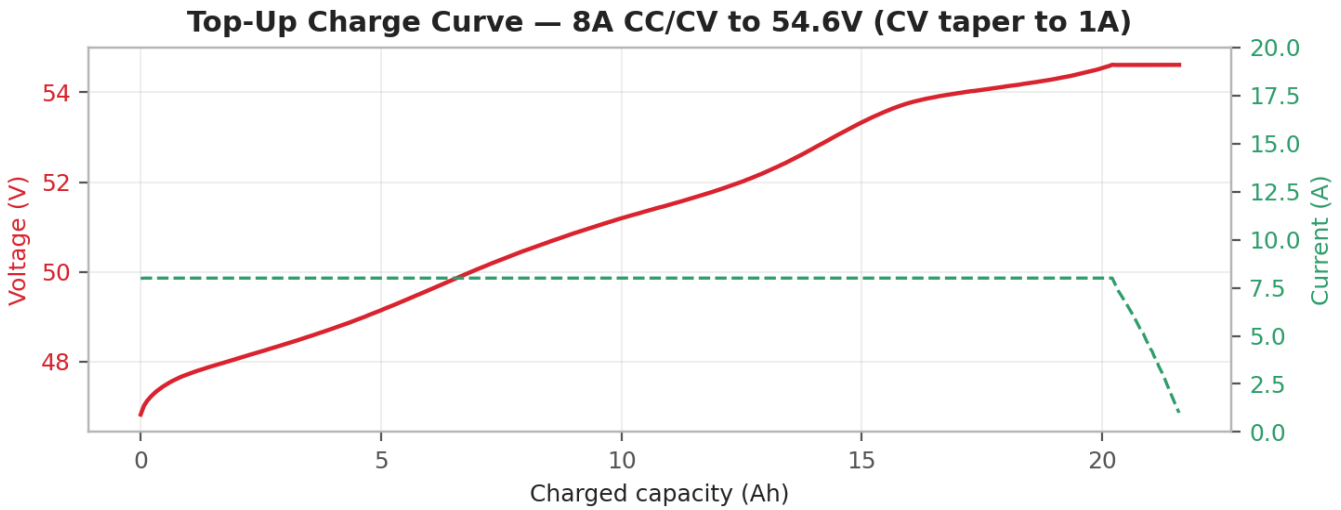


Figure 3 — Step 1 charge curve: voltage and current against charged capacity. Current tapers in the CV phase near 54.6V.

6. Notes

1. All values in this report are taken directly from the test system data export of 24 September 2026; no values have been adjusted or estimated.
2. The pack arrived partially charged, so Step 1 was a top-up charge to 54.6V (21.60 Ah accepted from the as-received state) rather than a full charge from empty, and no round-trip efficiency is quoted for this run. The rated full-discharge result is Step 3.
3. The 37.0V discharge cut-off and 54.6V full-charge voltage correspond to the pack's 13S6P 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 30A, which for a 13S6P pack is 5.0A per cell (1.0C), 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 1.0C is not directly comparable with the low-rate nameplate figure.