



SES 100Ah Li-Metal Cell Data Report

November 2023



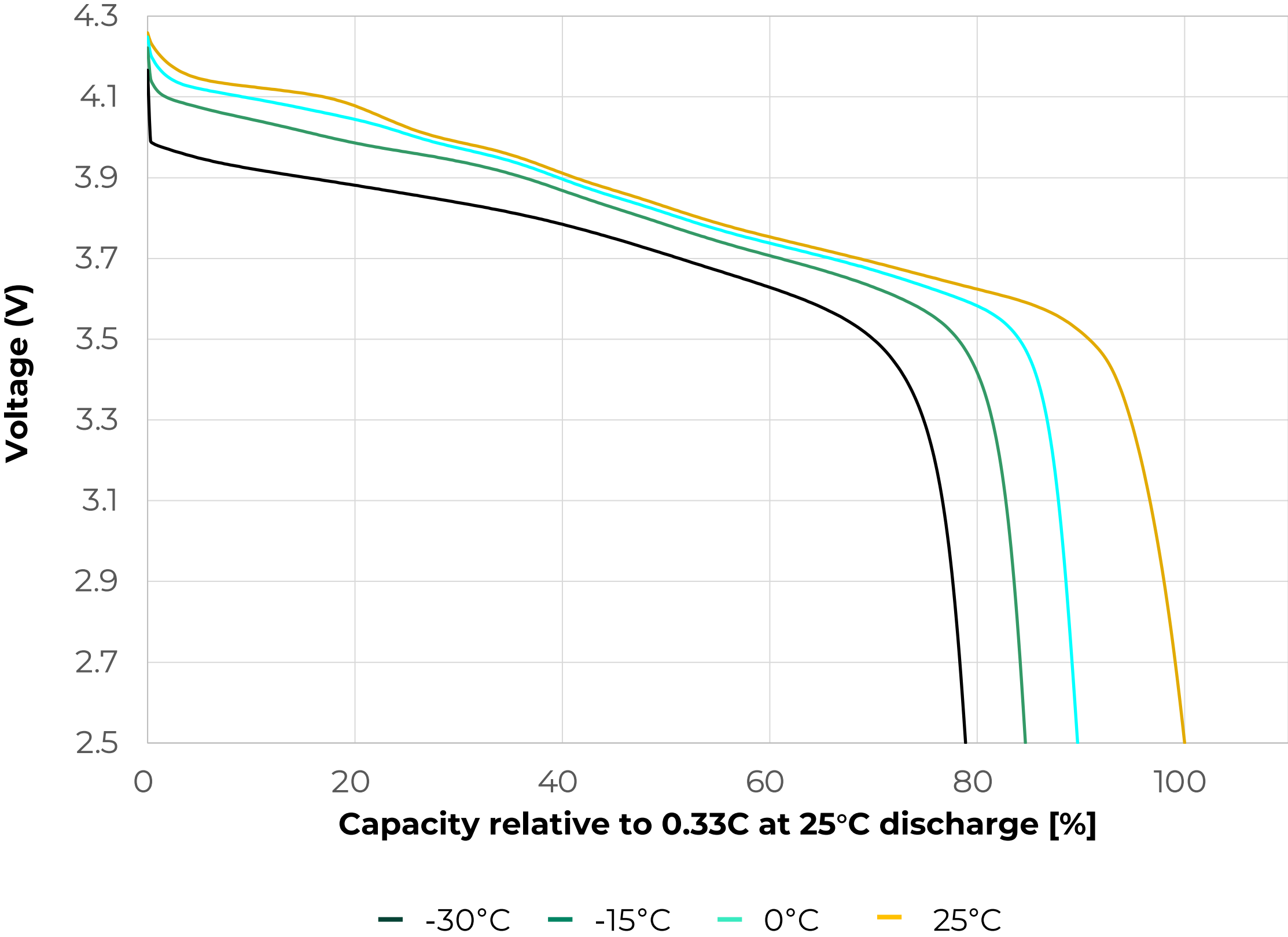
CELL TEST DATA SUMMARY TABLE (4Ah vs. 50Ah vs. 100Ah)

	Cell Type	4.2Ah (25+ layer) at 25°C	50.7Ah (16+ layer) at 25°C	105.8Ah (32+ layer) at 25°C
Room Temperature (25°C) Energy Density	Low power C/20	>375 Wh/Kg	-	-
	Low power C/10	375 Wh/Kg (= 700 Wh/L at SOC 0%)	357 Wh/Kg (= 773 Wh/L at SOC 30%)	399 Wh/Kg (= 862 Wh/L at SOC 30%)
	Medium power C/3	-	342 Wh/Kg (=743 Wh/L)	390 Wh/Kg (= 842 Wh/L)
	Medium power 1C	339 Wh/Kg	-	370 Wh/Kg
	High power 3C	-	303 Wh/Kg	351 Wh/Kg
	High power 5C	321 Wh/Kg	-	-
Low Temperature (0°C) Energy Density	Low power C/10	324 Wh/Kg	-	-
	Medium power C/3	-	305 Wh/Kg	346 Wh/Kg
	Medium power 1C	298 Wh/Kg	-	-
	High power 5C	282 Wh/Kg	-	-
Lifetime (Ch-Dch)	C/10 – C/3	600 cycles (80% retention)	>200 cycles (Ongoing)	>300 ongoing
	C/3 – C/3	300 cycles (80% retention)	210 cycles (80% retention)	>250 ongoing
	C/5 - 1C	700 cycles (80% retention)	-	-
Fast Charging	Charge at 4C	80% in <15min	-	-
Safety	Thermal	Electrolyte is stable with Li above Li melting point	PASS TEST	PASS TEST
	Nail Penetration	PASS TEST	PASS TEST	PASS TEST
	Overcharge	PASS TEST	PASS TEST	PASS TEST
	External Short Circuit	PASS TEST	PASS TEST	PASS TEST
Certification		UN38.3	UN38.3, IATF16949	UN38.3
Manufacturability		<i>(highly similar process to Li-ion)</i>		
Tested Operating Temperature		-30 °C to 60 °C	-10 °C to 45 °C	-10 °C to 45 °C

LOW TEMPERATURE PERFORMANCE

Excellent performance in cold weather

Retains 80% capacity (C/3 at 25°C) even at -30°C

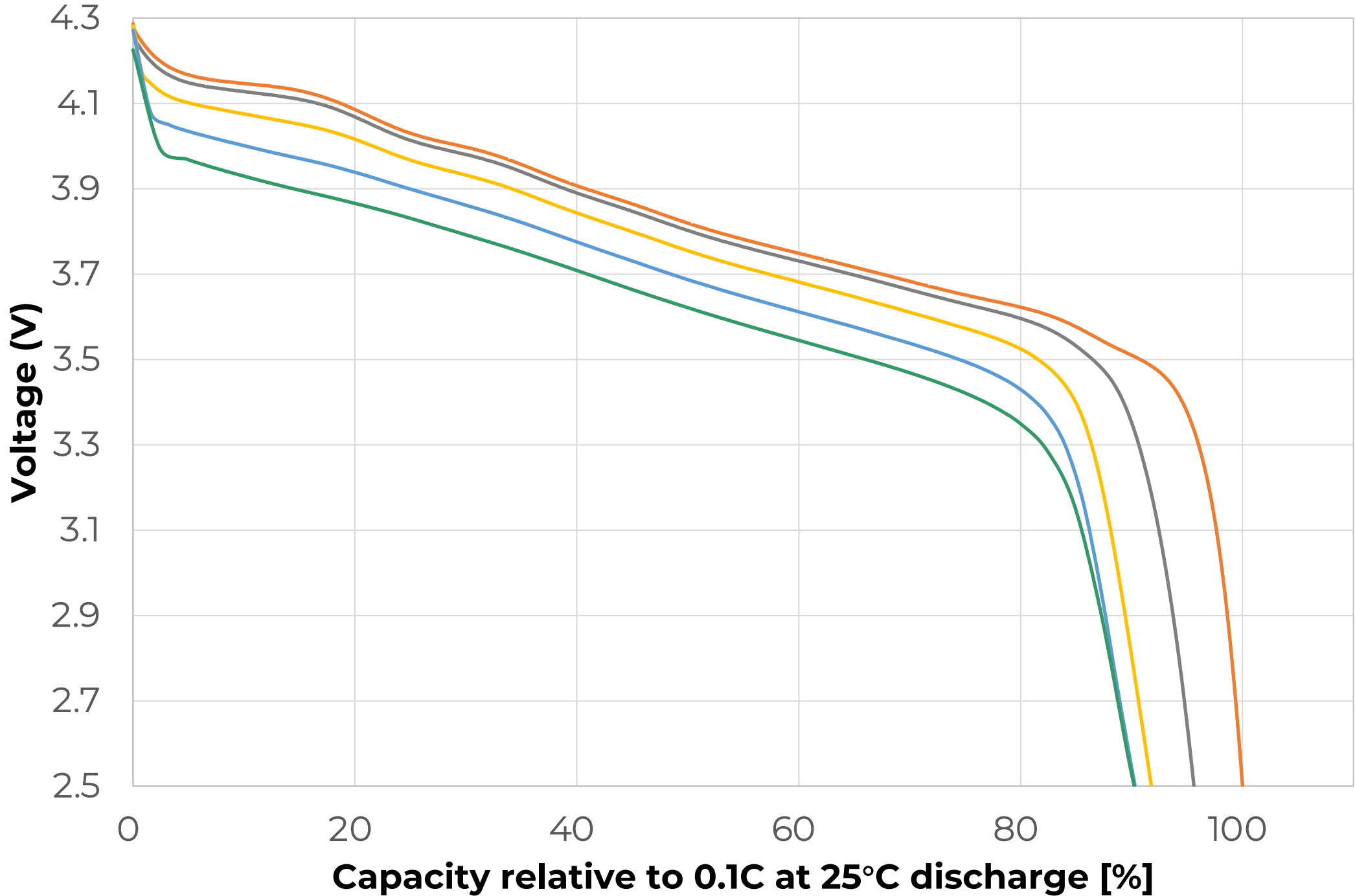


Note: all data from 3rd-party testing

HIGH POWER PERFORMANCE

Excellent performance in high power requirements

Retains 90% capacity (C/3 at 25°C) even at 3C



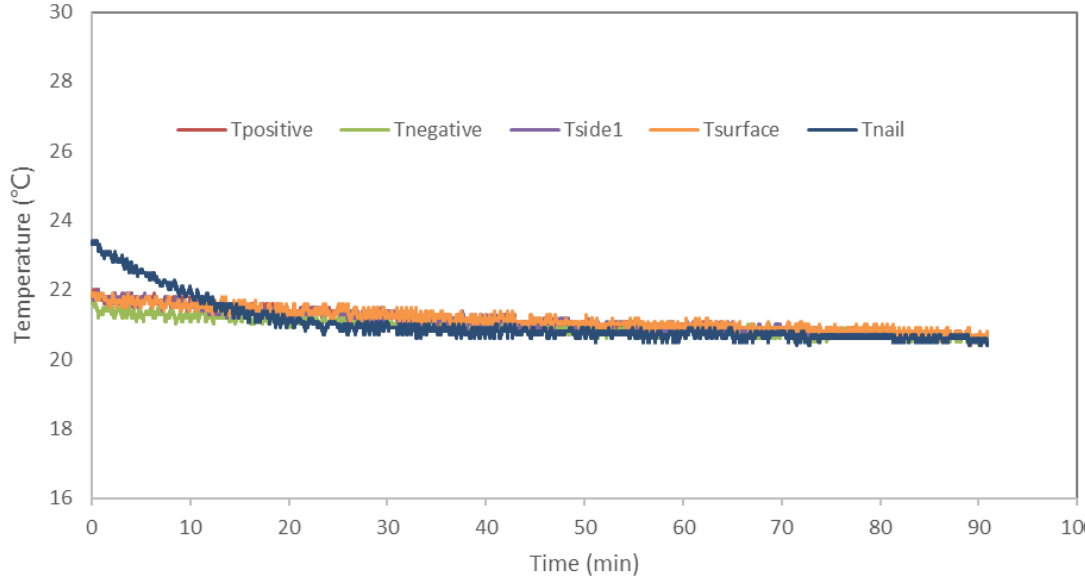
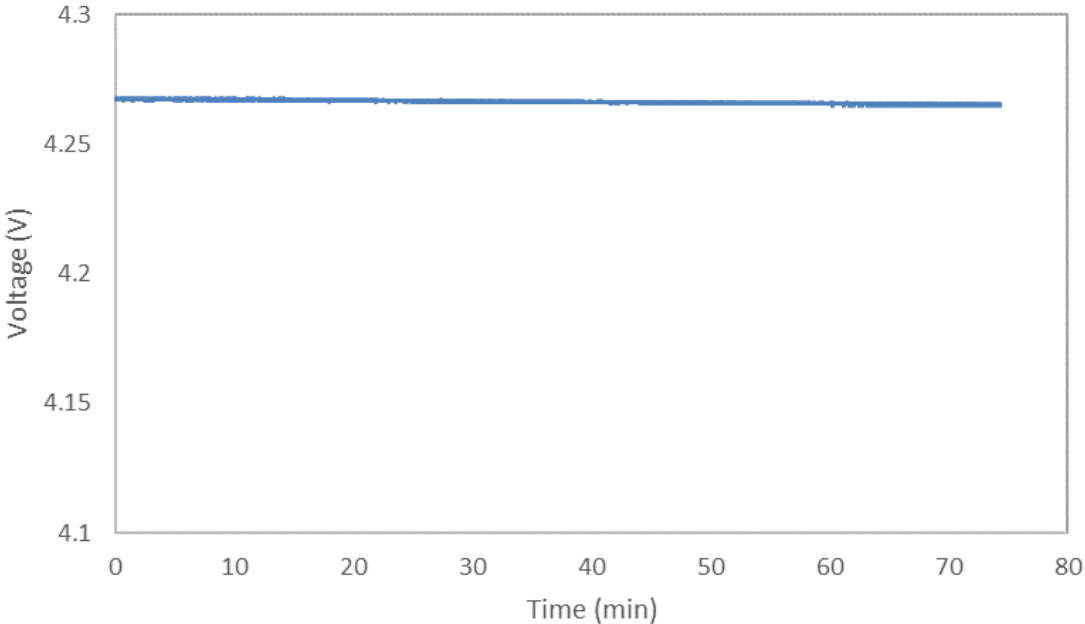
Note: all data from 3rd-party testing

SAFETY PERFORMANCE – NAIL PENETRATION

✓ PASSED



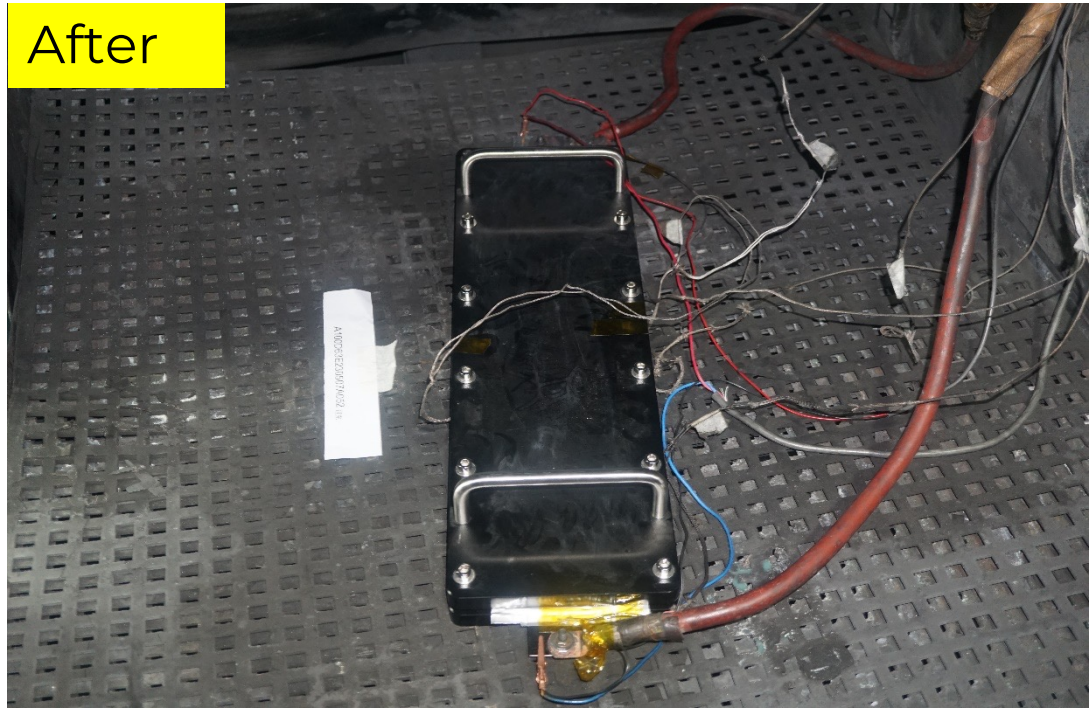
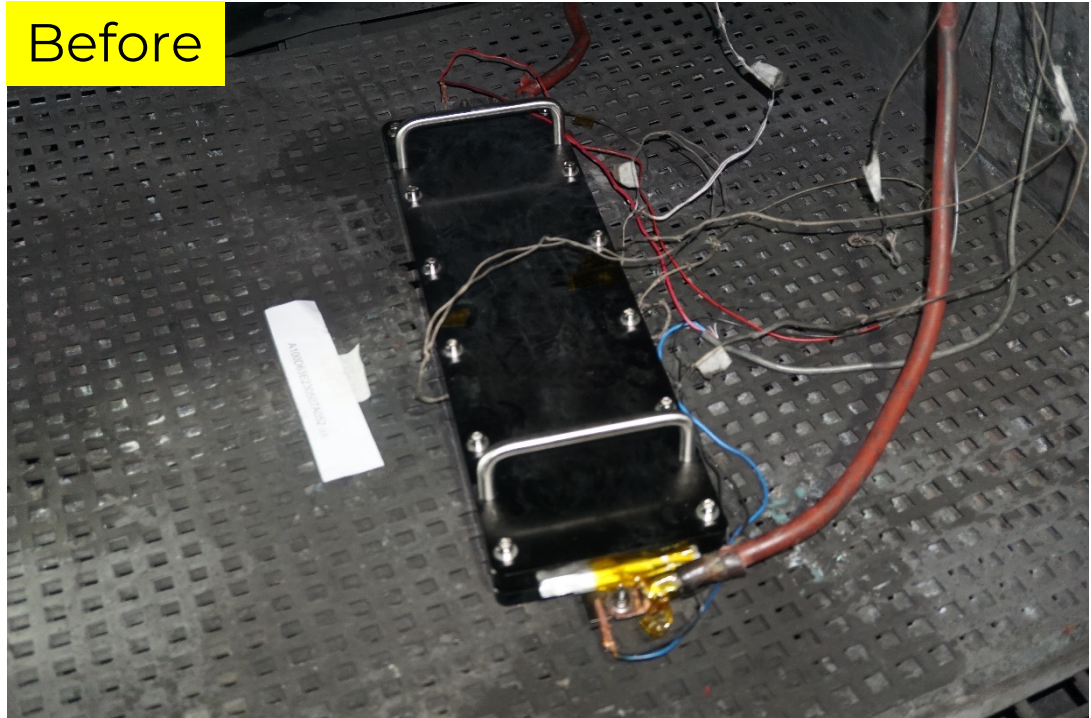
No thermal runaway



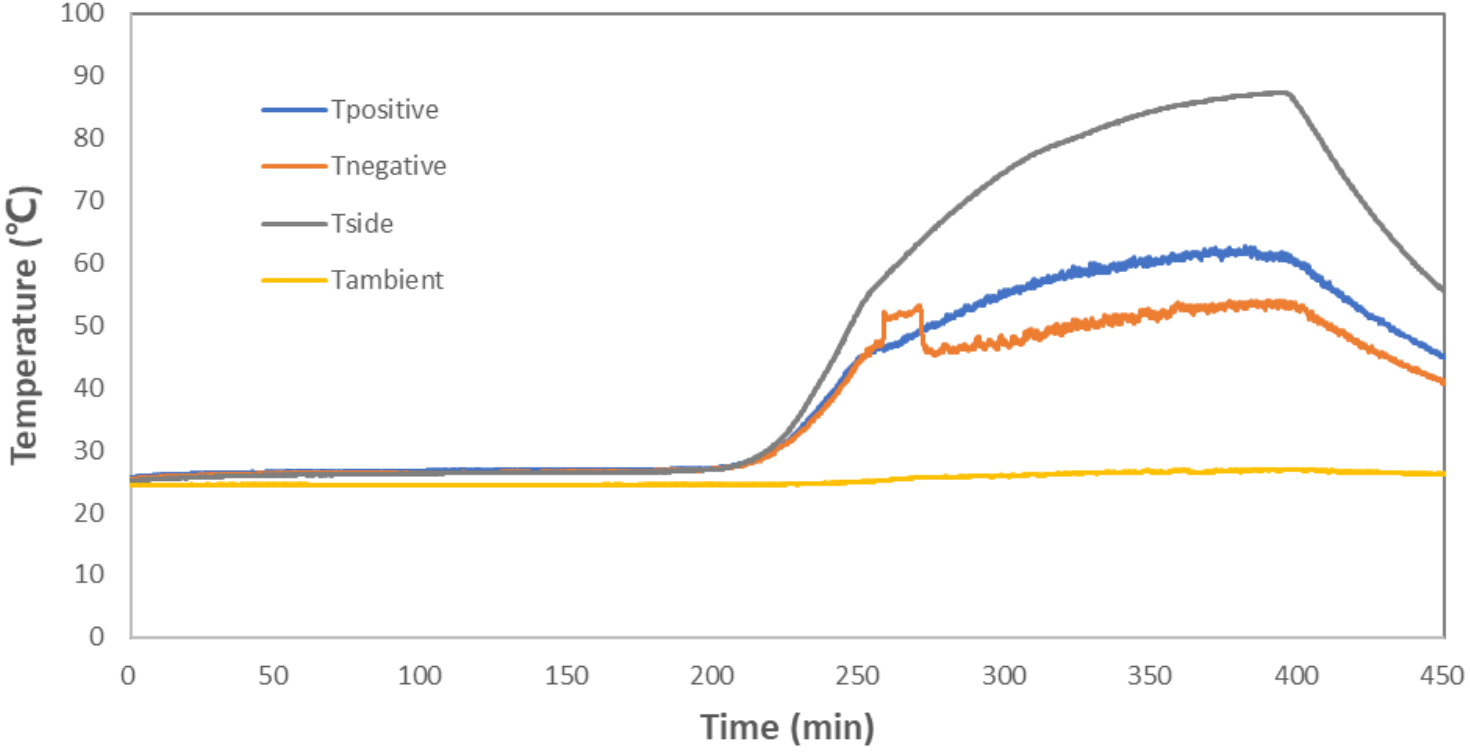
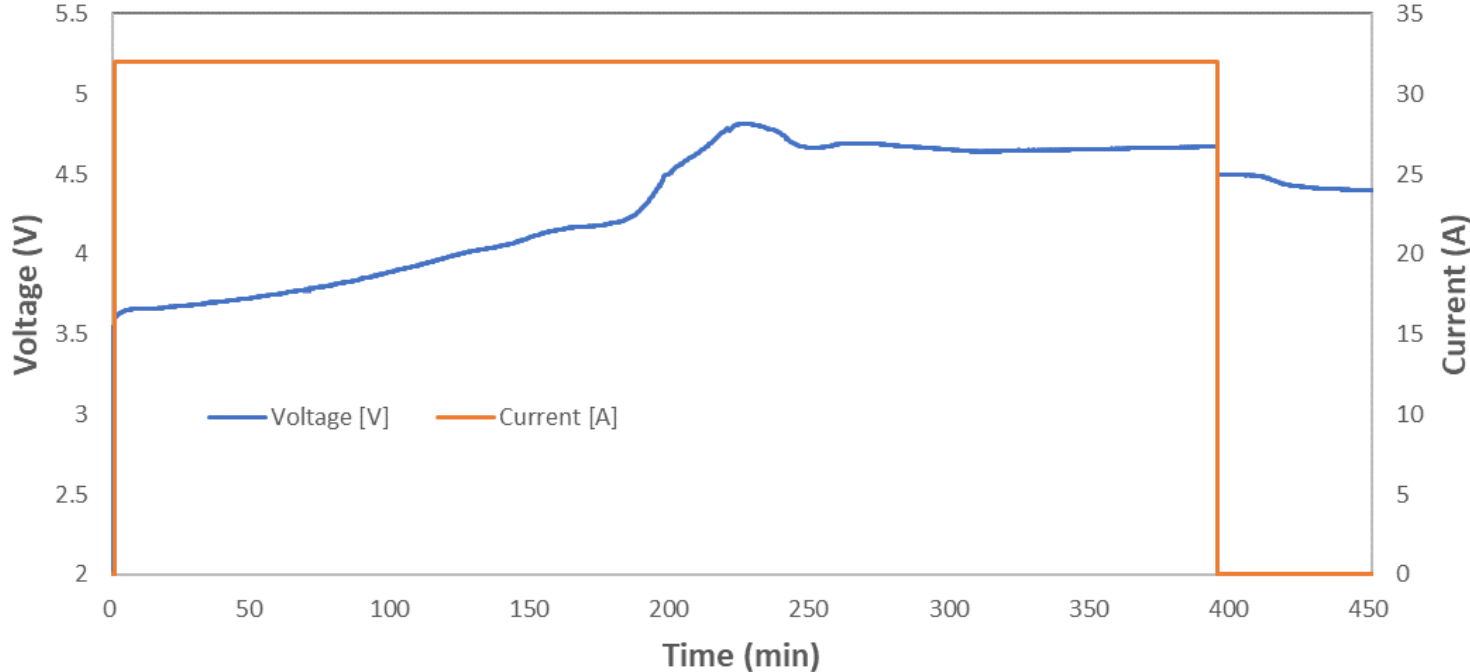
Note: all data from 3rd-party testing

SAFETY PERFORMANCE – OVERCHARGE

✓ PASSED



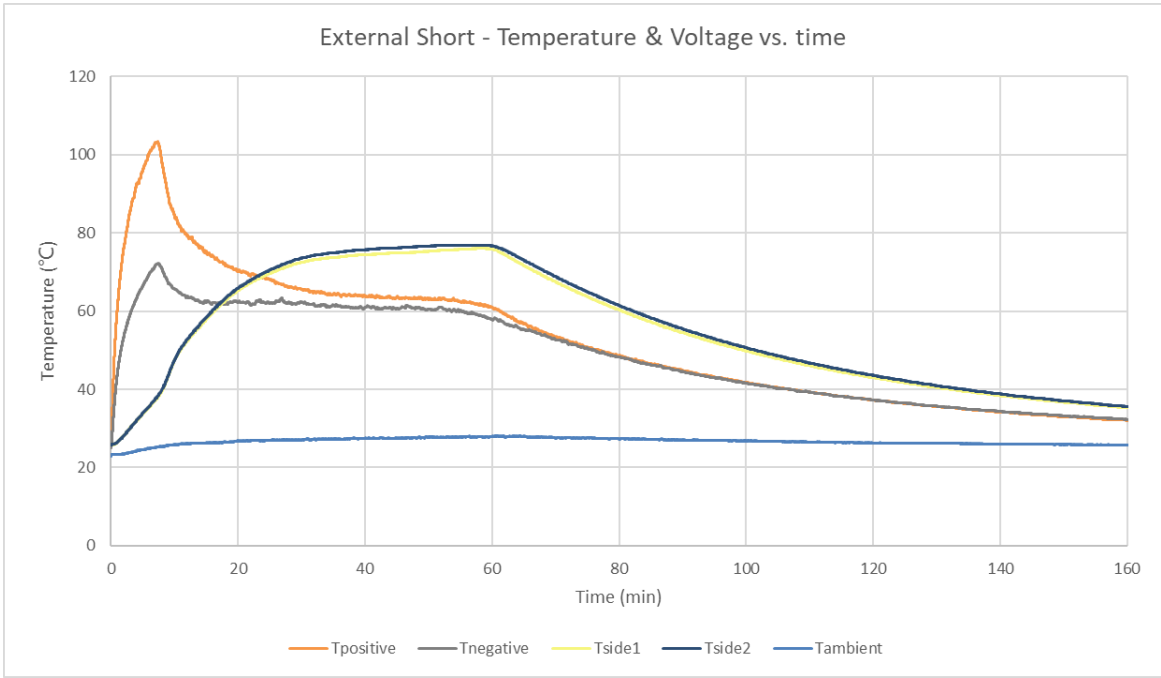
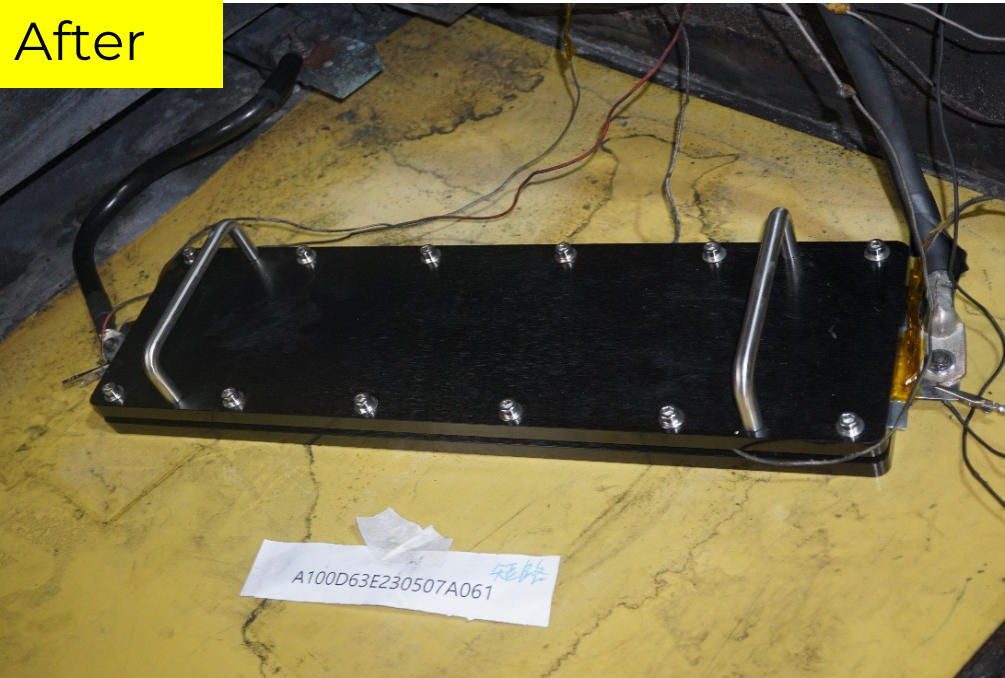
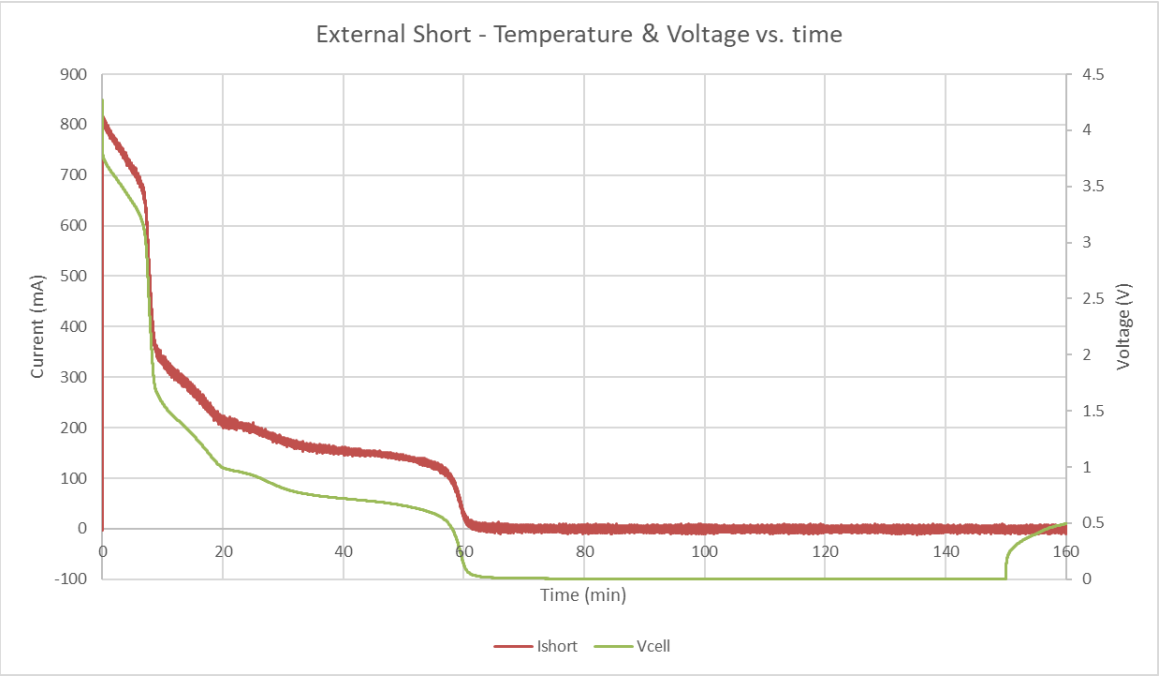
No thermal runaway



Note: all data from 3rd-party testing

SAFETY PERFORMANCE – EXTERNAL SHORT CIRCUIT

✓ PASSED

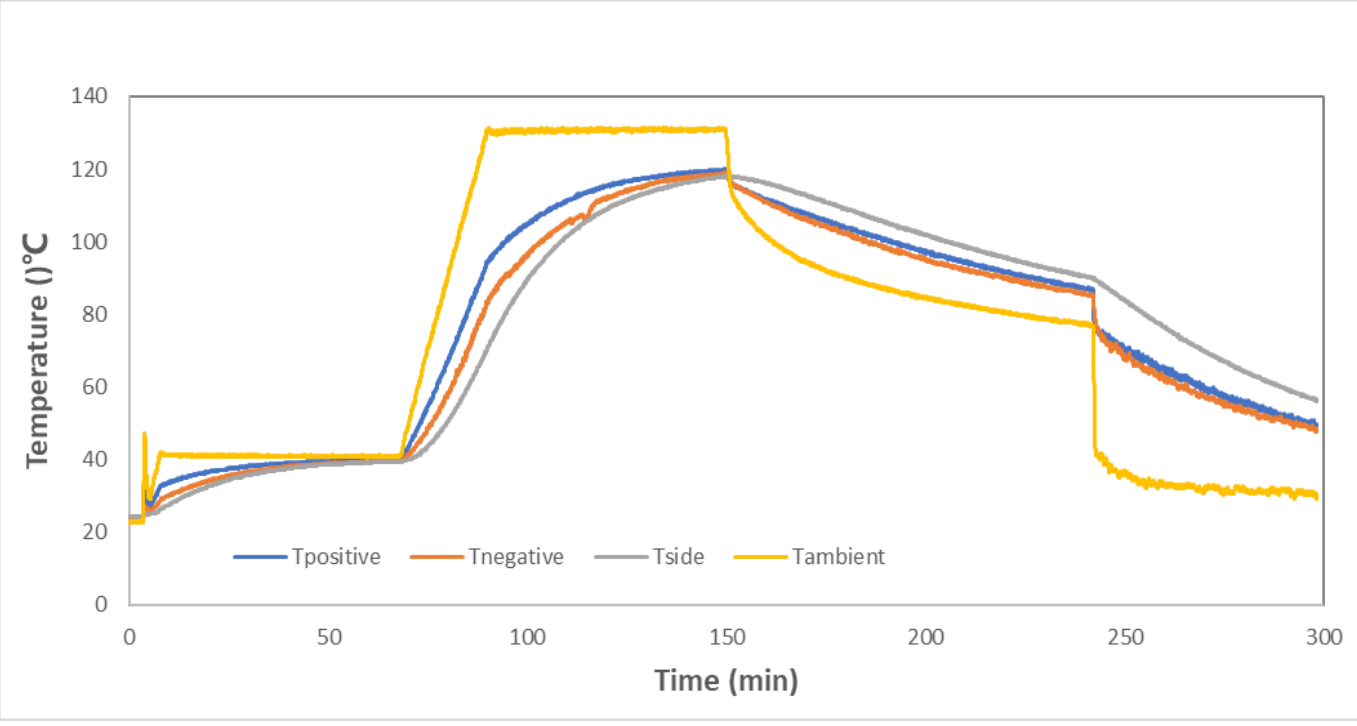
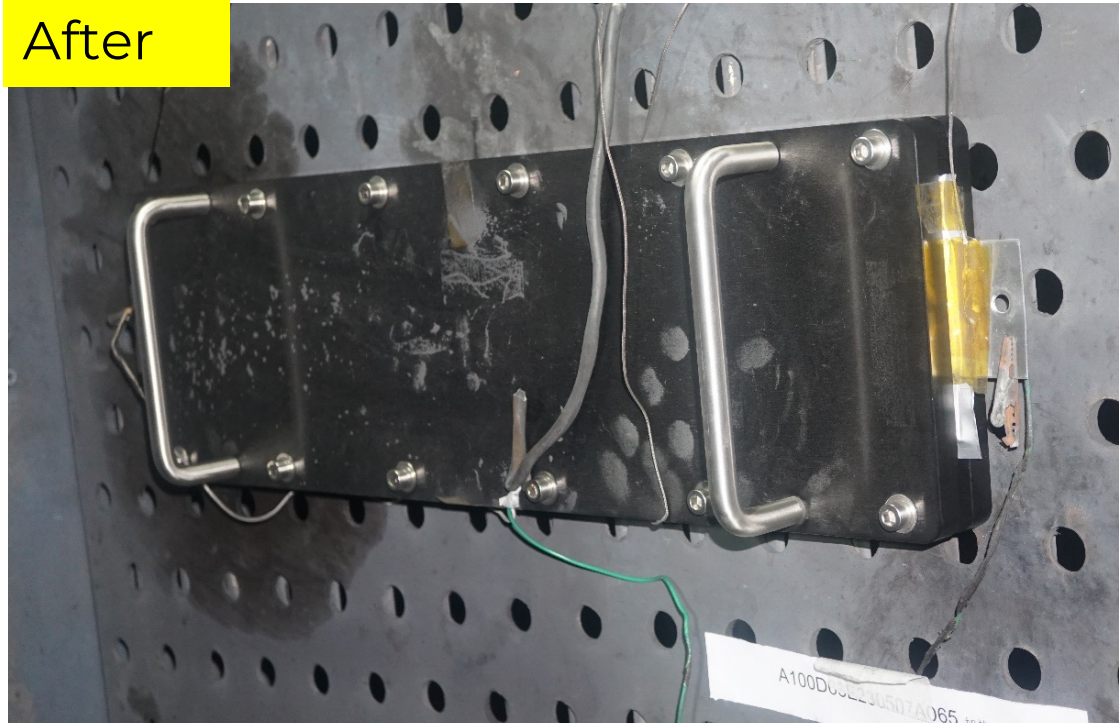
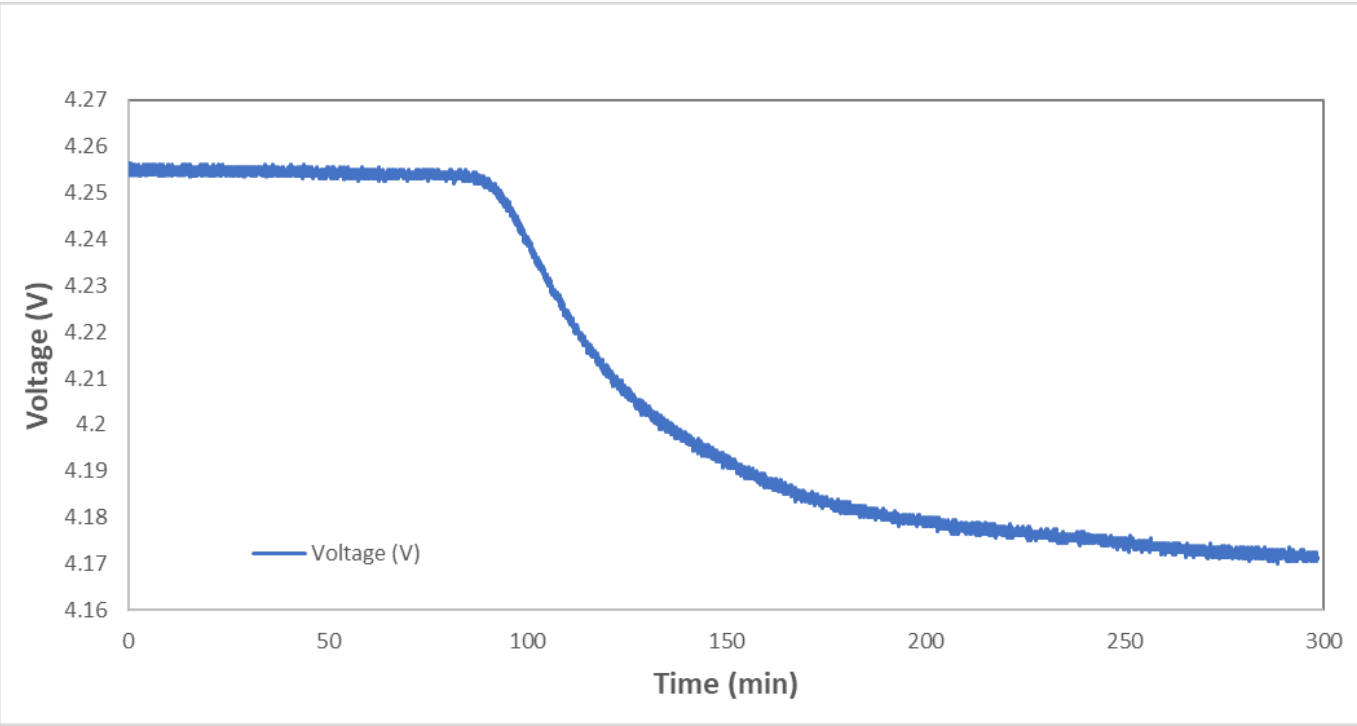
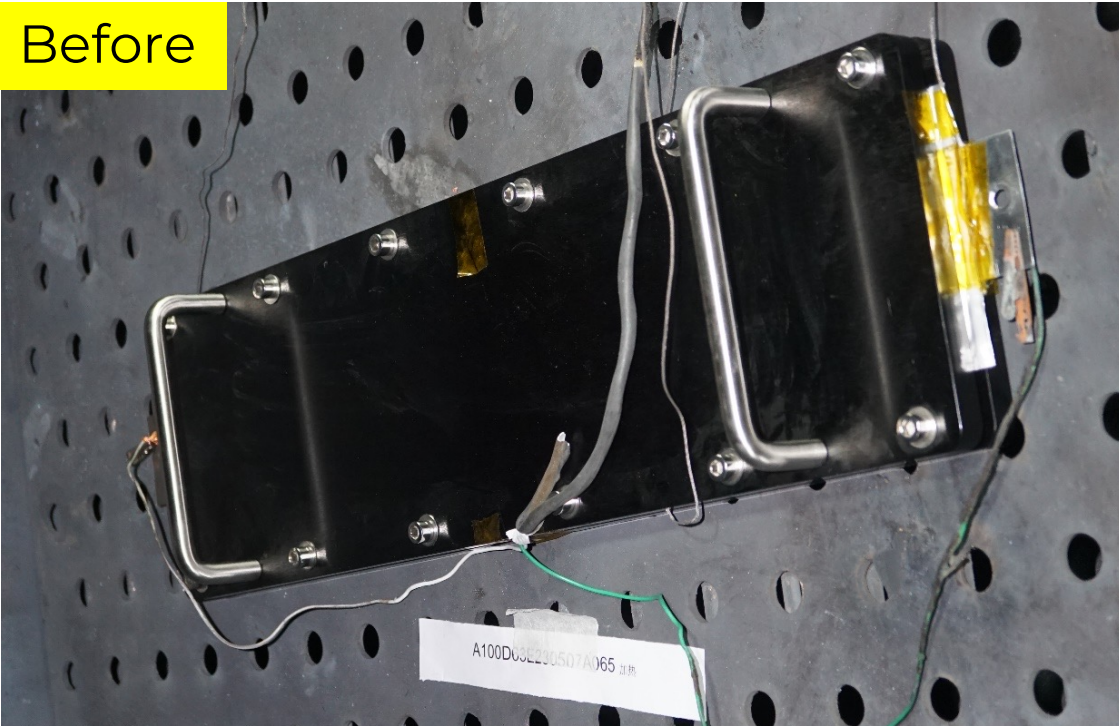


No thermal runaway even when cell is short circuited

Note: all data from 3rd-party testing

SAFETY PERFORMANCE – THERMAL STABILITY




✓ PASSED



No thermal runaway

Note: all data from 3rd-party testing

UN38.3 CERTIFICATION

UN 38.3

Test Report



New Application
 Modification
 Other

Report ID: 20230805J23561


Sample Name: Rechargeable lithium battery cell

Model/Type: 71B0582
3.82V 105.3Ah 402Wh

Applicant: SES AI Corporation


CQC Intime Testing Technology Co.,Ltd.



UN38.3

LITHIUM CELLS OR BATTERIES TEST SUMMARY
IN ACCORDANCE WITH SUB-SECTION 38.3
OF UN MANUAL OF TESTS AND CRITERIA

NO. CQCIT2306J0442

Sample Description:	Sample Test Information:																											
<p>Cell/battery Name: Rechargeable lithium battery cell</p> <p>Mass: 0.98kg</p> <p>Specification Parameter: <input checked="" type="checkbox"/> Li-ion battery/cell 3.82 V 105.3 Ah 402 Wh <input type="checkbox"/> Li-metal battery/cell ___ V ___ Ah ___ g</p> <p>Physical Description: Pouch Cell</p> <p>Model Numbers: 71B0582</p>	<p>Test Report Number: 20230805J23561</p> <p>Date of Test Report: 2023-10-20</p> <p>Edition of UN Manual of Tests and Criteria Used: Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.7/Amend.1/Section 38.3</p> <p>List of Tests Conducted and Results(Pass/Fail):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Test No.</th> <th>Test Name</th> <th>Result</th> </tr> </thead> <tbody> <tr><td>T1</td><td>Altitude simulation</td><td>Pass</td></tr> <tr><td>T2</td><td>Thermal test</td><td>Pass</td></tr> <tr><td>T3</td><td>Vibration</td><td>Pass</td></tr> <tr><td>T4</td><td>Shock</td><td>Pass</td></tr> <tr><td>T5</td><td>External short circuit</td><td>Pass</td></tr> <tr><td>T6</td><td>Impact/Crush</td><td>Pass</td></tr> <tr><td>T7</td><td>Overcharge</td><td>Not applicable</td></tr> <tr><td>T8</td><td>Forced discharge</td><td>Pass</td></tr> </tbody> </table> <p>Assembled Lithium Battery Test Requirement: <input type="checkbox"/> 38.3.3(f) <input type="checkbox"/> 38.3.3(g) <input checked="" type="checkbox"/> N/A </p>	Test No.	Test Name	Result	T1	Altitude simulation	Pass	T2	Thermal test	Pass	T3	Vibration	Pass	T4	Shock	Pass	T5	External short circuit	Pass	T6	Impact/Crush	Pass	T7	Overcharge	Not applicable	T8	Forced discharge	Pass
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<p>Applicant: SES AI Corporation 35 Cabot Road, Woburn, MA 01801 USA www.ses.ai</p>																												
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<p>UN38.3 Test Lab: CQC Intime Testing Technology Co., Ltd. No.1368 Wuzhong Dadao Road, Wuzhong Economic Development Zone, Suzhou, Jiangsu. 0512-66303621 jszlb@cqc-it.com http://www.cqc-it.com</p>	<div style="text-align: center;">  <p>Technical Leader</p> <p>Date of issue: 2023-10-20</p> </div>																											