

BATTERY TEST REPORT

REPORT NO. PTC23052400201S-LD01

Dated: JUNE 8, 2023



PARAMETER INFORMATION		
PRODUCT	CELL	BATTERY
MODEL	INR21700-4000	E1260-28-HD
NOMINAL VOLTAGE	3.7V	18V
RATED CAPACITY	4000mAh	4000mAh

PARAMETER INFORMATION		
PRODUCT	CELL	BATTERY
MODEL	INR21700-4000	E1260-28-HD
NOMINAL VOLTAGE	3.7V	18V
RATED CAPACITY	4000mAh	4000mAh
LIMITED CHARGE VOLTAGE	4.2V	21V
STANDARD CHARGE CURRENT	4000mAh	4000mAh
STANDARD DISCHARGE CURRENT	4000mAh	2400mAh
MAX CHARGE CURRENT	4000mAh	4000mAh
MAX DISCHARGE CURRENT	4000mAh	2400mAh
END OF CHARGE CURRENT	4000mAh	40mAh
CUT-OFF VOLTAGE	2.75V	13.5V
CELLS NUMBER	5PCS (5S1P)	

NO	NAME OF TEST	STANDARD REQUIREMENT OF THE CLAUSE NUMBER OF STANDARD	TEST RESULT	TEST CONCLUSION	REMARKS
1	Altitude Simulation	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.1 TEST T.1	See Appendix 1	PASSED	/
2	Thermal Test	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.2 TEST T.2	See Appendix 2	PASSED	/
3	Vibration	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.3 TEST T.3	See Appendix 3	PASSED	/
4	Shock	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.4 TEST T.4	See Appendix 4	PASSED	/
5	External Short Circuit	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.5 TEST T.5	See Appendix 5	PASSED	/
6	Impact	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.6 TEST T.6	See Appendix 6	PASSED	/
7	Overcharge	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.7 TEST T.7	See Appendix 7	PASSED	/
8	Forced Discharge	UN Manual of Tests and Criteria ST / SG / AC.10 / 11 / REV.7 AMENDMENT 1 / SUBSECTION 38.3 T.8 TEST T.8	See Appendix 8	PASSED	/
TEST ENVIRONMENT CONDITION		45% - 75% Ambient Temperature: 20 °C - 25 °C; Ambient Humidity: 45% - 75%			

APPENDIX 1

NO	1	NAME OF TEST ITEMS		ALTITUDE SIMULATION				
SAMPLE NO	SAMPLE STATUS	BEFORE		AFTER		MASS LOSS (%)	RESIDUAL VOLTAGE (%)	TEST RESULT
		M ₁ (G)	V ₁ (V)	M ₂ (G)	V ₂ (V)			
B1	1 CYC FULLY CHARGED	474.269	20.83	474.268	20.82	0.000	99.95	O
B2	1 CYC FULLY CHARGED	474.256	20.82	474.256	20.82	0.000	100.00	O
B3	1 CYC FULLY CHARGED	474.244	20.84	474.244	20.83	0.000	99.95	O
B4	1 CYC FULLY CHARGED	473.658	20.82	473.653	20.82	0.001	100.00	O
B9	25 CYC FULLY CHARGED	473.922	20.83	473.922	20.83	0.000	100.00	O
B10	25 CYC FULLY CHARGED	474.270	20.82	474.269	20.81	0.000	99.95	O
B11	25 CYC FULLY CHARGED	473.963	20.83	474.963	20.82	0.000	99.95	O
B12	25 CYC FULLY CHARGED	473.593	20.83	473.593	20.83	0.000	100.00	O

NOTES: L - LEAKAGE, V - VOLTAGE, D - DISASSEMBLY, R - RUPTURE, F - FIRE

O - NO LEAKAGE, NO VENTING, NO DISASSEMBLY, NO RUPTURE, NO FIRE

APPENDIX 2

NO	2	NAME OF TEST ITEMS		ALTITUDE SIMULATION				
SAMPLE NO	SAMPLE STATUS	BEFORE		AFTER		MASS LOSS (%)	RESIDUAL VOLTAGE (%)	TEST RESULT
		M ₁ (G)	V ₁ (V)	M ₂ (G)	V ₂ (V)			
B1	1 CYC FULLY CHARGED	474.268	2082	474.247	20.66	0.004	99.23	O
B2	1 CYC FULLY CHARGED	474.256	20.82	474.232	20.68	0.005	99.33	O
B3	1 CYC FULLY CHARGED	474.244	20.83	474.210	20.65	0.007	99.14	O
B4	1 CYC FULLY CHARGED	473.653	20.82	473.625	20.67	0.006	99.28	O
B9	25 CYC FULLY CHARGED	473.922	20.83	473.906	20.69	0.003	99.33	O
B10	25 CYC FULLY CHARGED	474.269	20.81	474.249	20.66	0.004	99.28	O
B11	25 CYC FULLY CHARGED	473.963	20.82	474.933	20.65	0.006	99.18	O
B12	25 CYC FULLY CHARGED	473.593	20.83	473.569	20.68	0.005	99.28	O

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APPENDIX 3

NO	3	NAME OF TEST ITEMS		ALTITUDE SIMULATION				
SAMPLE NO	SAMPLE STATUS	BEFORE		AFTER		MASS LOSS (%)	RESIDUAL VOLTAGE (%)	TEST RESULT
		M ₁ (G)	V ₁ (V)	M ₂ (G)	V ₂ (V)			
B1	1 CYC FULLY CHARGED	474.247	20.66	474.247	20.66	0.000	100.00	O
B2	1 CYC FULLY CHARGED	474.232	20.68	474.232	20.67	0.000	99.95	O
B3	1 CYC FULLY CHARGED	474.210	20.65	474.210	20.65	0.000	100.00	O
B4	1 CYC FULLY CHARGED	473.625	20.67	473.625	20.67	0.000	100.00	O
B9	25 CYC FULLY CHARGED	473.906	20.69	473.905	20.68	0.000	99.95	O
B10	25 CYC FULLY CHARGED	474.249	20.66	474.249	20.66	0.000	100.00	O
B11	25 CYC FULLY CHARGED	473.933	20.65	473.933	20.65	0.000	100.00	O
B12	25 CYC FULLY CHARGED	473.569	20.68	473.597	20.68	0.000	100.00	O

NOTES: L - LEAKAGE, V - VOLTAGE, D - DISASSEMBLY, R - RUPTURE, F - FIRE

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APPENDIX 4

NO	4	NAME OF TEST ITEMS		ALTITUDE SIMULATION				
SAMPLE NO	SAMPLE STATUS	BEFORE		AFTER		MASS LOSS (%)	RESIDUAL VOLTAGE (%)	TEST RESULT
		M ₁ (G)	V ₁ (V)	M ₂ (G)	V ₂ (V)			
B1	1 CYC FULLY CHARGED	474.247	20.66	474.247	20.64	0.000	99.90	O
B2	1 CYC FULLY CHARGED	474.232	20.67	474.232	20.67	0.000	100.00	O
B3	1 CYC FULLY CHARGED	474.210	20.65	474.210	20.65	0.000	100.00	O
B4	1 CYC FULLY CHARGED	473.625	20.67	473.623	20.67	0.000	100.00	O
B9	25 CYC FULLY CHARGED	473.905	20.68	473.902	20.67	0.001	99.95	O
B10	25 CYC FULLY CHARGED	474.249	20.66	474.249	20.66	0.000	100.00	O
B11	25 CYC FULLY CHARGED	473.933	20.65	473.933	20.65	0.000	100.00	O
B12	25 CYC FULLY CHARGED	473.567	20.68	473.567	20.68	0.000	100.00	O

NOTES: L - LEAKAGE, V - VOLTAGE, D - DISASSEMBLY, R - RUPTURE, F - FIRE

O - NO LEAKAGE, NO VENTING, NO DISASSEMBLY, NO RUPTURE, NO FIRE

APPENDIX 5

NO	5	NAME OF TEST ITEMS	EXTERNAL SHORT CIRCUIT	
SAMPLE NO	SAMPLE STATUS	MAX EXTERNAL TEMPERATURE (°C)	TEST RESULT	REMARK
B1	1 CYC FULLY CHARGED	57.9	0	/
B2	1 CYC FULLY CHARGED	58.1	0	/
B3	1 CYC FULLY CHARGED	58.3	0	/
B4	1 CYC FULLY CHARGED	57.7	0	/
B9	25 CYC FULLY CHARGED	58.5	0	/
B10	25 CYC FULLY CHARGED	58.0	0	/
B11	25 CYC FULLY CHARGED	57.5	0	/
B12	25 CYC FULLY CHARGED	57.8	0	/

NOTES: EXTERNAL TEMPERATURE NOT EXCEED 170 °C

D - DISASSEMBLY, R - RUPTURE, F - FIRE

O - NO DISASSEMBLY, NO RUPTURE, NO FIRE

APPENDIX 6

NO	6	NAME OF TEST ITEMS	IMPACT	
SAMPLE NO	SAMPLE STATUS	MAX EXTERNAL TEMPERATURE (°C)	TEST RESULT	REMARK
C1	1 CYC 50% CAPACITY	24.7	0	/
C2	1 CYC 50% CAPACITY	25.5	0	/
C3	1 CYC 50% CAPACITY	24.8	0	/
C4	1 CYC 50% CAPACITY	25.0	0	/
C5	1 CYC 50% CAPACITY	23.8	0	/
C6	25 CYC 50% CAPACITY	24.5	0	/
C7	25 CYC 50% CAPACITY	24.9	0	/
C8	25 CYC 50% CAPACITY	25.4	0	/
C9	25 CYC 50% CAPACITY	24.0	0	/
C10	25 CYC 50% CAPACITY	24.2	0	/

NOTES: EXTERNAL TEMPERATURE NOT EXCEED 170 °C

D - DISASSEMBLY, F - FIRE

O - NO DISASSEMBLY, NO FIRE

APPENDIX 7

NO	7	NAME OF TEST ITEMS	OVERCHARGE	
SAMPLE NO		SAMPLE STATUS	TEST RESULT	REMARK
B5		1 CYC FULLY CHARGED	0	/
B6		1 CYC FULLY CHARGED	0	/
B7		1 CYC FULLY CHARGED	0	/
B8		1 CYC FULLY CHARGED	0	/
B13		25 CYC FULLY CHARGED	0	/
B14		25 CYC FULLY CHARGED	0	/
B15		25 CYC FULLY CHARGED	0	/
B16		25 CYC FULLY CHARGED	0	/
<i>NOTES: EXTERNAL TEMPERATURE NOT EXCEED 170 °C</i> <i>D - DISASSEMBLY, F - FIRE</i> <i>O - NO DISASSEMBLY, NO FIRE</i>				

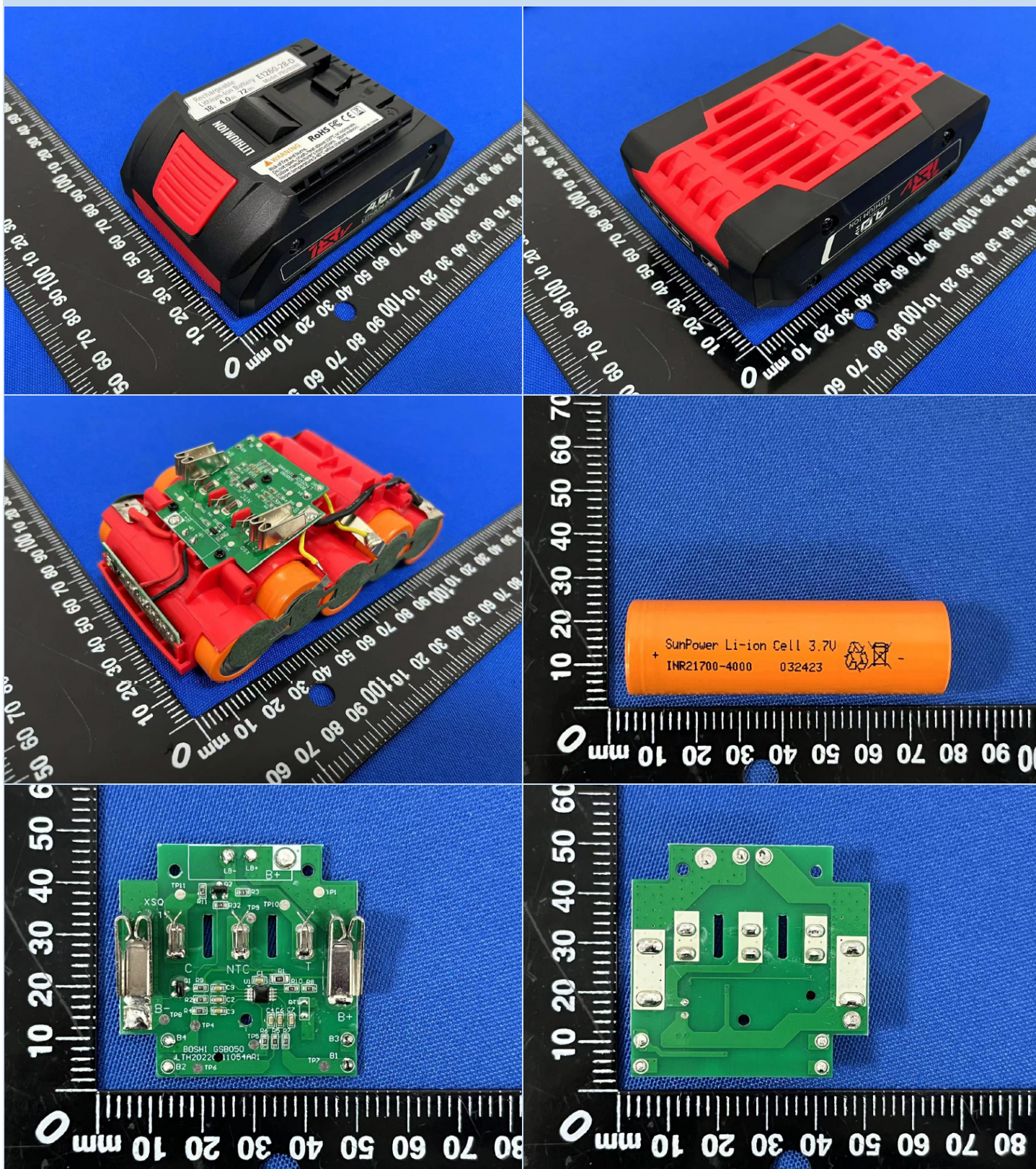
APPENDIX 8

NO	8	NAME OF TEST ITEMS	FORCED DISCHARGE	
SAMPLE NO		SAMPLE STATUS	TEST RESULT	REMARK
C11		1 CYC FULLY CHARGED	0	/
C12		1 CYC FULLY CHARGED	0	/
C13		1 CYC FULLY CHARGED	0	/
C14		1 CYC FULLY CHARGED	0	/
C15		1 CYC FULLY CHARGED	0	/
C16		1 CYC FULLY CHARGED	0	/
C17		1 CYC FULLY CHARGED	0	/
C18		1 CYC FULLY CHARGED	0	/
C19		1 CYC FULLY CHARGED	0	/
C20		1 CYC FULLY CHARGED	0	/
C21		25 CYC FULLY CHARGED	0	/
C22		25 CYC FULLY CHARGED	0	/
C23		25 CYC FULLY CHARGED	0	/
C24		25 CYC FULLY CHARGED	0	/
C25		25 CYC FULLY CHARGED	0	/
C26		25 CYC FULLY CHARGED	0	/
C27		25 CYC FULLY CHARGED	0	/
C28		25 CYC FULLY CHARGED	0	/
C29		25 CYC FULLY CHARGED	0	/
C30		25 CYC FULLY CHARGED	0	/

NOTES: D - DISASSEMBLY, F - FIRE

O - NO DISASSEMBLY, NO FIRE

SAMPLE PHOTOS



Rechargeable
Lithium-Ion Battery **E1260-28-D**
18v 4.0Ah 72Wh Model: PRO18V40