

BATTERY TEST REPORT

REPORT NO. PTC23033002101S-LD01

Dated: March 20, 2023



PARAMETER INFORMATION		
PRODUCT	CELL	BATTERY
MODEL	INR18650P	E1260-28-D
NOMINAL VOLTAGE	3.7V	18V
RATED CAPACITY	2000mAh	4.0AH (72WH)

PARAMETER INFORMATION		
PRODUCT	CELL	BATTERY
MODEL	INR21700-4000	E1260-28-D
NOMINAL VOLTAGE	3.7V	18V
RATED CAPACITY	2000mAh	4.0AH (72WH)
LIMITED CHARGE VOLTAGE	4.2V	21V
STANDARD CHARGE CURRENT	400mA	4000mA
STANDARD DISCHARGE CURRENT	400mAh	2400mA
MAX CHARGE CURRENT	20000mA	4000mA
MAX DISCHARGE CURRENT	20000mA	2400mA
END OF CHARGE CURRENT	40mA	80mA
CUT-OFF VOLTAGE	2.7V	13.5V
CELLS NUMBER	10PCS (5S2P)	

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		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	588.511	20.82	588.511	20.82	0.000	100.00	O
B2	1 CYC FULLY CHARGED	588.547	20.83	588.547	20.83	0.000	100.00	O
B3	1 CYC FULLY CHARGED	588.523	20.81	588.523	20.81	0.000	100.00	O
B4	1 CYC FULLY CHARGED	588.551	20.80	588.551	20.80	0.001	100.00	O
B9	25 CYC FULLY CHARGED	588.489	20.80	588.488	20.80	0.000	100.00	O
B10	25 CYC FULLY CHARGED	588.509	20.80	588.509	20.80	0.000	100.00	O
B11	25 CYC FULLY CHARGED	588.492	20.80	588.492	20.80	0.000	100.00	O
B12	25 CYC FULLY CHARGED	588.550	20.84	588.547	20.83	0.001	99.95	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		THERMAL TEST				
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	558.511	20.82	588.506	20.81	0.001	99.95	O
B2	1 CYC FULLY CHARGED	588.547	20.83	588.538	20.81	0.002	99.90	O
B3	1 CYC FULLY CHARGED	588.523	20.81	588.514	20.80	0.002	99.95	O
B4	1 CYC FULLY CHARGED	588.551	20.80	588.546	20.79	0.001	99.95	O
B9	25 CYC FULLY CHARGED	588.488	20.80	588.479	20.79	0.002	99.95	O
B10	25 CYC FULLY CHARGED	588.509	20.80	588.504	20.78	0.001	99.90	O
B11	25 CYC FULLY CHARGED	588.492	20.80	588.483	20.79	0.002	99.95	O
B12	25 CYC FULLY CHARGED	588.547	20.83	588.542	20.82	0.001	99.95	O

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

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

APPENDIX 3

NO	3	NAME OF TEST ITEMS		VIBRATION				
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	588.506	20.81	588.506	20.81	0.000	100.00	O
B2	1 CYC FULLY CHARGED	588.538	20.81	588.534	20.81	0.001	100.00	O
B3	1 CYC FULLY CHARGED	588.514	20.80	588.514	20.80	0.000	100.00	O
B4	1 CYC FULLY CHARGED	588.546	20.79	588.546	20.79	0.000	100.00	O
B9	25 CYC FULLY CHARGED	588.479	20.79	588.479	20.79	0.000	100.00	O
B10	25 CYC FULLY CHARGED	588.504	20.78	588.504	20.78	0.000	100.00	O
B11	25 CYC FULLY CHARGED	588.483	20.79	588.483	20.79	0.000	100.00	O
B12	25 CYC FULLY CHARGED	588.542	20.82	588.542	20.81	0.000	99.95	O

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

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APPENDIX 4

NO	4	NAME OF TEST ITEMS		SHOCK				
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	588.506	20.81	588.506	20.80	0.000	99.95	O
B2	1 CYC FULLY CHARGED	588.534	20.81	588.530	20.81	0.001	100.00	O
B3	1 CYC FULLY CHARGED	588.514	20.80	588.514	20.80	0.000	100.00	O
B4	1 CYC FULLY CHARGED	588.546	20.79	588.546	20.79	0.000	100.00	O
B9	25 CYC FULLY CHARGED	588.479	20.79	588.479	20.79	0.000	100.00	O
B10	25 CYC FULLY CHARGED	588.504	20.78	588.504	20.78	0.000	100.00	O
B11	25 CYC FULLY CHARGED	588.483	20.79	588.483	20.79	0.000	100.00	O
B12	25 CYC FULLY CHARGED	588.542	20.81	588.542	20.81	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	58.0	0	/
B2	1 CYC FULLY CHARGED	58.0	0	/
B3	1 CYC FULLY CHARGED	57.3	0	/
B4	1 CYC FULLY CHARGED	57.2	0	/
B9	25 CYC FULLY CHARGED	58.1	0	/
B10	25 CYC FULLY CHARGED	57.4	0	/
B11	25 CYC FULLY CHARGED	57.3	0	/
B12	25 CYC FULLY CHARGED	57.1	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	108.6	O	/
C2	1 CYC 50% CAPACITY	112.6	O	/
C3	1 CYC 50% CAPACITY	114.7	O	/
C4	1 CYC 50% CAPACITY	113.8	O	/
C5	1 CYC 50% CAPACITY	112.1	O	/
C6	25 CYC 50% CAPACITY	116.2	O	/
C7	25 CYC 50% CAPACITY	114.5	O	/
C8	25 CYC 50% CAPACITY	113.7	O	/
C9	25 CYC 50% CAPACITY	106.5	O	/
C10	25 CYC 50% CAPACITY	112.4	O	/

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	O	/
B6		1 CYC FULLY CHARGED	O	/
B7		1 CYC FULLY CHARGED	O	/
B8		1 CYC FULLY CHARGED	O	/
B13		25 CYC FULLY CHARGED	O	/
B14		25 CYC FULLY CHARGED	O	/
B15		25 CYC FULLY CHARGED	O	/
B16		25 CYC FULLY CHARGED	O	/
<i>NOTES: EXTERNAL TEMPERATURE NOT EXCEED 170 °C</i> <i>D - DISASSEMBLY, F - FIRE</i> <i>O - NO DISASSEMBLY, NO FIRE</i>				

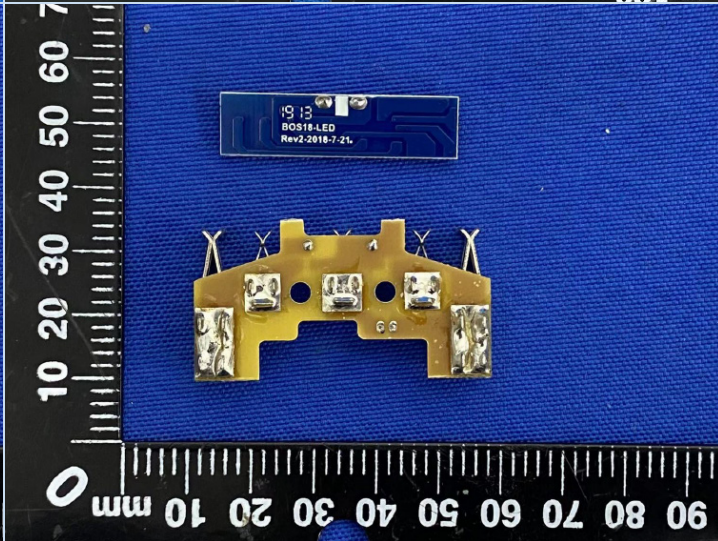
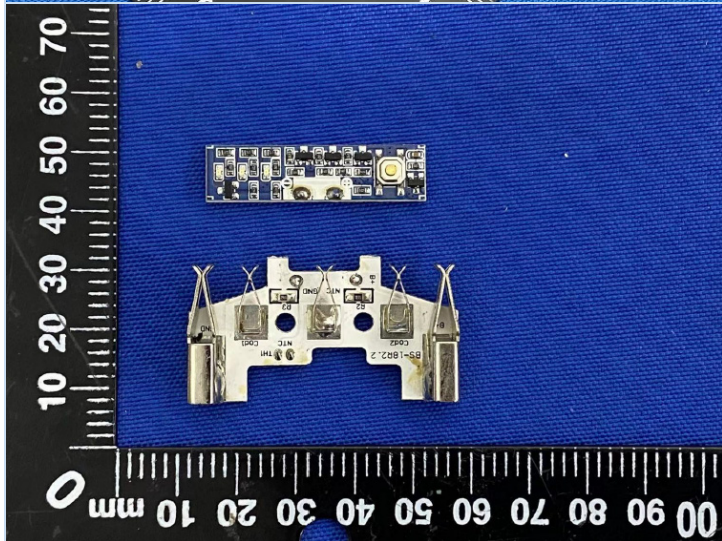
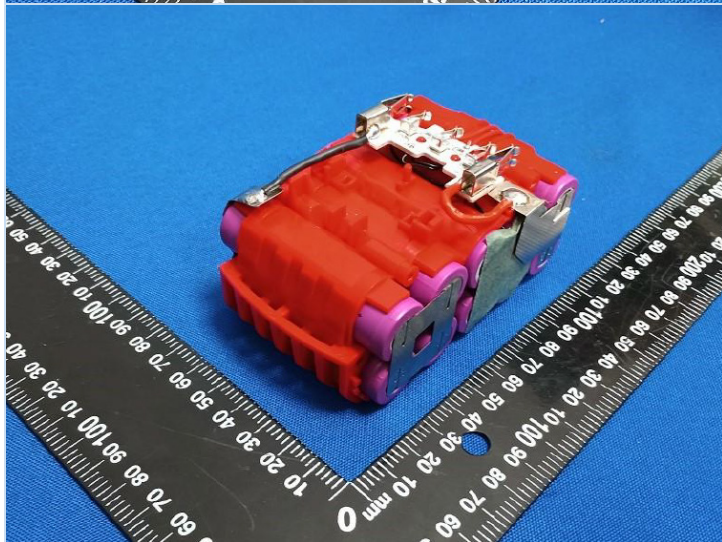
APPENDIX 8

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



Li-ion 18V 4.0Ah 72Wh
ML: GBA18V40

WARNING:

To reduce the risk of fire or burns
do not disassemble, crush, puncture
or short external contacts.