

## UN 38.3 Test Report

**Lithium cell or battery test summary in accordance with  
sub-section 38.3 of Manual of Tests and Criteria.**

<b>Test Report Number</b>	UN-C41N2302-A1
<b>Customer Name</b>	ASUS
<b>Product Name</b>	Rechargeable Li-Polymer Battery Pack
<b>Model Name</b>	C41N2302
<b>Test specification</b>	ST/SG/AC.10/11/Rev.7/Amend.1
<b>UN38.3 Test Item</b>	T.1, T.2, T.3, T.4, T.5, T.6, T.7, T.8 (Note that T.6 and T.8 are for Cell)
<b>Test sample No</b>	1~38
<b>Test Date</b>	2023/5/9 ~ 2023/6/6
<b>Date of Test Report</b>	2023/6/7
<b>Product Manufacturer &amp; Test Laboratory</b>	Dynapack Electronic Technology (Suzhou) Co., Ltd
<b>Manufacturer &amp; Test Laboratory information</b>	Address: No. 8 Hua-Gang Road, WuJiang Economical and Technological Development Zone, Suzhou city, JiangSu. PRC. Tel: 0086-051263408688 E-mail: Will.Wei@dynapack.com.cn ZIP: 215200 Website: <a href="http://www.dynapack.com.tw">http://www.dynapack.com.tw</a>



Description of Battery	
Model Name	C41N2302
Battery Type	Small Rechargeable Li-Polymer Battery Pack
Pack Configuration	4 Series / 1 Parallel
Nominal Voltage	15.48 Vdc
Rated Capacity(mAh/Wh)	4580mAh / 73Wh
Mass	0.260 kg
Pack Dimension(mm)	254.0*75.7*8.0
Cell Brand	ATL
Cell model	3560B6

Performed Tests		Results
UN38.3 T1	Altitude simulation	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T2	Thermal test	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T3	Vibration	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T4	Shock	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T5	External short circuit	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T6	Crush	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T7	Overcharge	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
UN38.3 T8	Forced discharge	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL
Reference to assembled battery testing requirements:		
<input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> UN38.3.3(f)		<input checked="" type="checkbox"/> UN38.3.3(g)

Prepared By :

Checked By :

Approved By :



 Engineer  
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 Section Manager  
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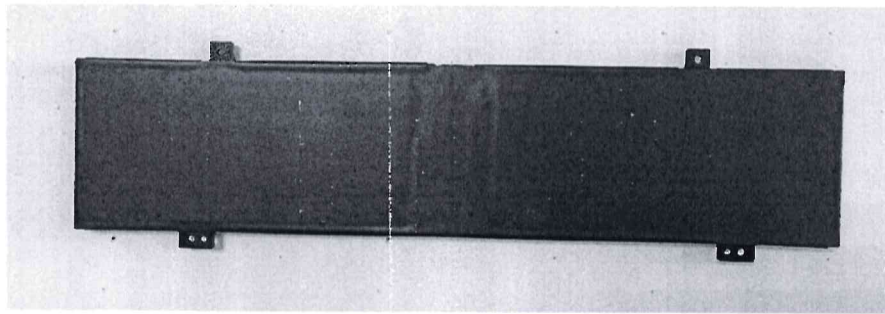
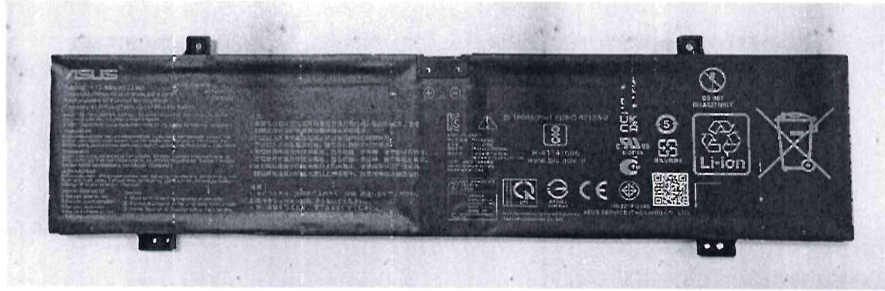
 Senior Manager  
Barton.Chen


## 1. Test Equipment

Inst. No.	Description	Series No	Function/Range
WJ6014	Learning Machine	D14106-2	20 V / 10 A
WJ6015	Chamber	6609K	-40~150°C
WJ9004	Learning Machine	D20131-7	20V / 15A
WJ9005	Chamber	MEA1504-010	0~100°C, 10%~98%RH
WJ6103	Electronic Scales	0929016	0.2~600g, Accuracy 0.01g
WJ6108	3560 AC mΩMeter	051139050	0~5/50 V / 30mΩ-3kΩ
WJ6105	Vacuum Machine	GS55-221	-76~0cmHg
WJ6189	Thermal shock2	9811K	200°C ~-80°C
WJ6073	Vibration Machine	D1202031	5~2000Hz Level/5~1500Hz Vertical; Max. acceleration: 100gVertical;
WJ6188	Shock	M-15488	100G/10ms~5000G/0.2ms
WJ6115	Chamber	6514K	0-150°C /20%RH~98%RH
WJ6104	34970 data recorder	MY44039623	-100~+400°C
WJ4035	Digital Caliper	05565311	0~200mm
WJ6052	Crush	LG2975	0~20KN
WJ8037	34970 data recorder	MY44039446	-100~+400°C
WJ6106	POWER SUPPLY	006103176669002004	0~30V;0~18A
WJ6107	POWER SUPPLY	006103176670001002	0~30V;0~18A
WJ7006	34970 data recorder	MY44042480	-100~+400°C
WJ7008	POWER SUPPLY	006103156267001009	0~30V;0~18A
WJ7009	POWER SUPPLY	006103156273001007	0~30V;0~18A
WJ6197	DC E-LOAD	002022506570001023	3~120 V / 0~60 A
WJ7015	DC E-LOAD	123354F6A001	3~120 V / 0~60 A
WJ8000	Digital T-H-Meter	0046160D04	- 20 to 70°C 0%~100%RH
WJ8001	Digital T-H-Meter	2045240566	0 to+50°C/10 to 95%HR
WJ8002	Digital T-H-Meter	2045240692	0 to+50°C/10 to 95%HR

## 2. Detail records as below :

### 2.1 Photograph



Rating: +15.48V  $\approx$  73Wh  
Questions? Please visit [www.asus.com](http://www.asus.com)  
Rechargeable Li-Polymer Battery Pack  
Capacity: 4720mAh(Typical) / 4580mAh(Rated)

MODEL(型號/型号): C41N2302  
41CP4/60/117  
二次鋰電池組

## 2.2 Test Data:

### 2.2.1 T.1 Altitude

Sample No.	Sample	OCV(V)	OCV(V)	Voltage Residual (%)	Mass(g)	Mass(g)	Mass Loss (%)	Result
	Status	Before	After		Before	After		
1	1CYC , Fully charge	17.601	17.553	99.73%	257.85	257.89	0.00%	PASS
2	1CYC , Fully charge	17.603	17.557	99.74%	259.24	259.26	0.00%	PASS
3	1CYC , Fully charge	17.609	17.560	99.72%	257.35	257.38	0.00%	PASS
4	1CYC , Fully charge	17.604	17.553	99.71%	258.41	258.39	0.01%	PASS
5	25CYC , Fully charge	17.610	17.555	99.69%	257.60	257.61	0.00%	PASS
6	25CYC , Fully charge	17.601	17.552	99.72%	257.72	257.73	0.00%	PASS
7	25CYC , Fully charge	17.607	17.554	99.70%	259.30	259.29	0.00%	PASS
8	25CYC , Fully charge	17.604	17.553	99.71%	258.10	258.05	0.02%	PASS
Temperature, °C		24.3		Humidity, %RH		46.9		

#### Criteria:

\*Batteries meet requirement regard mass loss was less than (0.5% , $M < 1g$ ; 0.2% ,  $1g \leq M \leq 75 g$  ; 0.1% ,  $M > 75 g$  ) and voltage after testing is not less than 90% of its voltage immediately prior to this procedure.

\*No leakage, No venting, No disassembly, No rupture and no fire.

### 2.2.2 T.2 Thermal shock

Sample No.	Sample	OCV(V)	OCV(V)	Voltage Residual (%)	Mass(g)	Mass(g)	Mass Loss (%)	Result
	Status	Before	After		Before	After		
1	1CYC , Fully charge	17.553	17.279	98.44%	257.89	257.89	0.00%	PASS
2	1CYC , Fully charge	17.557	17.281	98.43%	259.26	259.21	0.02%	PASS
3	1CYC , Fully charge	17.560	17.277	98.39%	257.38	257.36	0.01%	PASS
4	1CYC , Fully charge	17.553	17.270	98.39%	258.39	258.39	0.00%	PASS
5	25CYC , Fully charge	17.555	17.272	98.39%	257.61	257.61	0.00%	PASS
6	25CYC , Fully charge	17.552	17.276	98.43%	257.73	257.73	0.00%	PASS
7	25CYC , Fully charge	17.554	17.270	98.38%	259.29	259.27	0.01%	PASS
8	25CYC , Fully charge	17.553	17.274	98.41%	258.05	258.00	0.02%	PASS
Temperature, °C		23.6		Humidity, %RH		47.3		

#### Criteria:

\*Batteries meet requirement regard mass loss was less than (0.5% , $M < 1g$ ; 0.2% ,  $1g \leq M \leq 75 g$  ; 0.1% ,  $M > 75 g$  ) and voltage after testing is not less than 90% of its voltage immediately prior to this procedure.

\*No leakage, No venting, No disassembly, No rupture and no fire.

### 2.2.3 T.3 Vibration

Sample No.	Sample	OCV(V)	OCV(V)	Voltage Residual (%)	Mass(g)	Mass(g)	Mass Loss (%)	Result
	Status	Before	After		Before	After		
1	1CYC , Fully charge	17.279	17.239	99.77%	257.89	257.84	0.02%	PASS
2	1CYC , Fully charge	17.281	17.236	99.74%	259.21	259.24	0.00%	PASS
3	1CYC , Fully charge	17.277	17.236	99.76%	257.36	257.37	0.00%	PASS
4	1CYC , Fully charge	17.270	17.227	99.75%	258.39	258.42	0.00%	PASS
5	25CYC , Fully charge	17.272	17.229	99.75%	257.61	257.56	0.02%	PASS
6	25CYC , Fully charge	17.276	17.240	99.79%	257.73	257.70	0.01%	PASS
7	25CYC , Fully charge	17.270	17.232	99.78%	259.27	259.30	0.00%	PASS
8	25CYC , Fully charge	17.274	17.234	99.77%	258.00	258.02	0.00%	PASS
Temperature, °C		23.6		Humidity, %RH		48.0		

#### Criteria:

\*Batteries meet requirement regard mass loss was less than (0.5% , $M < 1g$ ; 0.2% ,  $1g \leq M \leq 75g$  ; 0.1% ,  $M > 75g$  ) and voltage after testing is not less than 90% of its voltage immediately prior to this procedure.

\*No leakage, No venting, No disassembly, No rupture and no fire.

### 2.2.4 T.4 shock

Sample No.	Sample	OCV(V)	OCV(V)	Voltage Residual (%)	Mass(g)	Mass(g)	Mass Loss (%)	Result
	Status	Before	After		Before	After		
1	1CYC , Fully charge	17.239	17.192	99.73%	257.84	257.86	0.00%	PASS
2	1CYC , Fully charge	17.236	17.186	99.71%	259.24	259.28	0.00%	PASS
3	1CYC , Fully charge	17.236	17.189	99.73%	257.37	257.33	0.02%	PASS
4	1CYC , Fully charge	17.227	17.180	99.73%	258.42	258.37	0.02%	PASS
5	25CYC , Fully charge	17.229	17.182	99.73%	257.56	257.57	0.00%	PASS
6	25CYC , Fully charge	17.240	17.192	99.72%	257.70	257.67	0.01%	PASS
7	25CYC , Fully charge	17.232	17.177	99.68%	259.30	259.26	0.02%	PASS
8	25CYC , Fully charge	17.234	17.184	99.71%	258.02	258.04	0.00%	PASS
Temperature, °C		24.6		Humidity, %RH		48.3		

#### Criteria:

\*Batteries meet requirement regard mass loss was less than (0.5% , $M < 1g$ ; 0.2% ,  $1g \leq M \leq 75g$  ; 0.1% ,  $M > 75g$  ) and voltage after testing is not less than 90% of its voltage immediately prior to this procedure.

\*No leakage, No venting, No disassembly, No rupture and no fire.

### 2.2.5 T.5 External Short circuit

Sample NO.	Sample Status	Max Battery Temperature(°C)	Result
1	1CYC , Fully charge	57.29	PASS
2	1CYC , Fully charge	57.47	PASS
3	1CYC , Fully charge	57.34	PASS
4	1CYC , Fully charge	57.03	PASS
5	25CYC , Fully charge	57.46	PASS
6	25CYC , Fully charge	57.45	PASS
7	25CYC , Fully charge	57.40	PASS
8	25CYC , Fully charge	57.18	PASS
Temperature, °C		23.5	Humidity, %RH
			47.5

#### Criteria:

\*All Batteries can meet requirement subjected external temperature does not exceed 170 °C.

\*All Batteries no disassembly, no rupture and no fire during the test and within six hours of this test.

### 2.2.6 T.6 Crush

Sample NO.	Sample Status	Max Cell Temperature (°C)	Result
9	1CYC,50% Capacity	23.55	PASS
10	1CYC,50% Capacity	23.58	PASS
11	1CYC,50% Capacity	23.52	PASS
12	1CYC,50% Capacity	23.56	PASS
13	1CYC,50% Capacity	23.51	PASS
14	25CYC,50% Capacity	23.57	PASS
15	25CYC,50% Capacity	23.59	PASS
16	25CYC,50% Capacity	23.54	PASS
17	25CYC,50% Capacity	23.55	PASS
18	25CYC,50% Capacity	23.56	PASS
Temperature, °C		23.5	Humidity, %RH
			47.4

#### Criteria:

\*All cells can meet requirement subjected external temperature does not exceed 170°C.

\*All cells no disassembly and no fire during the test and within six hours of this test.

## 2.2.7 T.7 Over Charge

Sample NO.	Sample Status		Result
1	1CYC, Fully charge		PASS
2	1CYC, Fully charge		PASS
3	1CYC, Fully charge		PASS
4	1CYC, Fully charge		PASS
5	25CYC, Fully charge		PASS
6	25CYC, Fully charge		PASS
7	25CYC, Fully charge		PASS
8	25CYC, Fully charge		PASS
Temperature, °C		23.7	Humidity, %RH
			48.9

### Criteria:

\*All batteries can meet no disassembly and no fire during the test and within seven days after the test.

## 2.2.8 T.8 Forced Discharge

Sample NO.	Sample Status	Result	Sample NO.	Sample Status	Result
19	1CYC, Fully discharge	PASS	29	25CYC, Fully discharge	PASS
20	1CYC, Fully discharge	PASS	30	25CYC, Fully discharge	PASS
21	1CYC, Fully discharge	PASS	31	25CYC, Fully discharge	PASS
22	1CYC, Fully discharge	PASS	32	25CYC, Fully discharge	PASS
23	1CYC, Fully discharge	PASS	33	25CYC, Fully discharge	PASS
24	1CYC, Fully discharge	PASS	34	25CYC, Fully discharge	PASS
25	1CYC, Fully discharge	PASS	35	25CYC, Fully discharge	PASS
26	1CYC, Fully discharge	PASS	36	25CYC, Fully discharge	PASS
27	1CYC, Fully discharge	PASS	37	25CYC, Fully discharge	PASS
28	1CYC, Fully discharge	PASS	38	25CYC, Fully discharge	PASS
Temperature, °C		23.8	Humidity, %RH		48.2

### Criteria:

\*All cells no disassembly and no fire during the test and within seven days after the test.

--- End of Test report ---