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Project 4788946470

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REPORT

on

Power Banks
(BBSZ)

Complementary Product Category

INFORMATION TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL BUSINESS EQUIPMENT
(NWGQ, NWGQ7)

Induction Power Transmitters and Receivers

for use with Low Energy Products

(BBJL)

ShenZhen C-star Electronic Tech CO LTD
SHENZHEN, CN

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DESCRIPTION

PRODUCT COVERED:

USL, CNL - Power Bank(s), Model(s): SP0415, UQ9750, CPP-5422, **SP0532**, **CPP-5398**, **SP0526**, **32373**, **CPP-5495**, **SP0537** and **CPP-5411**.

***MODEL DIFFERENCE:**

Basic Model(s)	Derivative Model(s)	Model Differences
SP0415	UQ9750, CPP-5422	Identical to Model SP0415 except for model designation
SP0415	SP0532	Identical to Model SP0415 except for enclosure shape.
SP0532	CPP-5398	Identical to Model SP0532 except for model designation
SP0415	SP0526	Identical to Model SP0415 except for enclosure, PCB layout, model designation and added wireless board.
SP0526	32373, CPP-5495	Identical to Model SP0526 except for model designation
SP0526	SP0537	Identical to Model SP0526 except for enclosure, PCB layout, wireless board and model designation
SP0537	CPP-5411	Identical to Model SP0537 except for model designation

ELECTRICAL RATING:

USB1 (Micro USB)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	2.0 Max. 3.0A for model SP0526 Max. 2.4A for model SP0537
USB2	Output Port # 1 Rated Voltage, Vdc	5.0
	Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 1 Rated Current, A	2.1
	Output Port # 1 Rated Capacity, mAh	2680 for model SP0415 2500 for model SP0526, SP0537
USB3 (Model SP0415, SP0532, SP0526)	Output Port # 2 Rated Voltage, Vdc	5.0
	Output Port # 2 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 2 Rated Current, A	2.1
	Output Port # 2 Rated Capacity, mAh	2680 for model SP0415 2500 for model SP0526
USB3 (Type- C) (For model SP0537)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	Max. 2.4A for model SP0537
Wireless output	Output Port # 3 Rated Voltage, Vdc	5.0
	Output Port # 3 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 3 Rated Current, A	1.0
	Output Port # 3 Rated Capacity, mAh	2100 (Wireless) for model SP0526, SP0537
All models	Manufacturer's Maximum Recommended Ambient, °C	0~45°C for Charging; 0~45°C for Discharging

Note: The products have been tested based upon their electrical ratings. No testing with a host product including a charger has been conducted.

CELL CHEMISTRY AND CONFIGURATION:

Pack Model	Cell Model	Cell Chemistry and Type#	Number of Cells	Configuration*: X-S/Y-P
All models	GPC955565	$\text{LiCoO}_2 + \text{C} \rightleftharpoons \text{Li}_x\text{C} + \text{Li}_{1-x}\text{CoO}_2$, lithium ion polymer (soft pouch)	1	1-S/1-P
* - X = No. of cells in series; Y = Number of parallel strings. # - e.g. lithium ion cylindrical, lithium ion prismatic, lithium ion polymer (soft pouch), Ni-Cad prismatic, etc.				

INTERNAL BATTERY CHARGING PARAMETERS RECOMMENDED BY MANUFACTURER:

Pack Model	Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc
All models	1.0	4.2	5.0	4.2

GENERAL CONSTRUCTION:

See Section General for general details regarding construction.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVES'S USE):

Products designated USL have been investigated using requirements contained in the Issue 2 of UL 2056, Outline of Investigation for Safety of Power Banks, issue dated November 03, 2015.

Products designated USL have been investigated using requirements contained in the U.S. Standard for Safety of Information Technology Equipment-Safety-Part1: General Requirements, UL 60950-1, Second Edition, issue dated March 27, 2007, with revisions through and including October 14, 2014.

Products designated CNL have been investigated using requirements contained in the Canadian Standard for the Safety of Information Technology Equipment-Safety-Part1: General Requirements, Canadian Standards Association, CAN/CSA-C22.2 No. 60950-1-07, second Edition, issue dated March 27, 2007, with revisions through and including October 14, 2014.

Products indicated as USL have been investigated using requirements contained in the U.S. Standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, Second Edition Dated January 12, 2018.

Power Bank, Model(s): SP0415 See Fig(s). 1~5.

Power Bank, Model(s): SP0532, CPP-5398 See Fig(s) 6~8.

Power Bank, Model(s): SP0526, 32373, CPP-5495 See Fig(s) 9~14.

Power Bank, Model(s): SP0537, CPP-5411 See Fig(s) 15~20.

See Ill(s). 1~3 for additional views of overall constructions. **for model SP0415.**

See Ill(s). 4 for additional views of overall constructions for model SP0532.

See Ill(s). 6 for additional views of overall constructions for model SP0526.

See Ill(s). 8 for additional views of overall constructions for model SP0537.

1. Cell(s) - See table below:

Battery Pack Model	Cell Manufacturer	Cell Model No.	Recognized Cells, Y or N*	recognized Cells	
				File Number	Issue Date
*All models	SHENZHEN GRAND POWERSOURCE GROUP CO LTD	GPC955565	Y	MH49375	2012-12-03
Note: See Cell Chemistry and Configuration Table at beginning of report for information on type of cells, number of cells and their configuration in the battery pack circuit.					

Cells are located within the product in a manner that would not result in blocking of vents in the event of cell venting. Cells are secured in their enclosure and prevented from movement that would cause damage to connections and short circuit of parts as described in Fig.3.

Connections to cell terminals are constructed as described in Fig.3.

*

2. Power Bank Enclosure/Case - See Table Below:

Model SP0415, UQ9750, CPP-5422:

Pack Model No.	Overall Dimensions, L x W x H, mm	Minimum Thickness, mm	Enclosure Material Manufacturer/Grade	Enclosure Material Type	Enclosure Material Flame Rating at Minimum Thickness*
SP0415, UQ9750, CPP-5422	Approximately 94.00mm X 63.20mm X 13.00mm	0.85 (Plastic Frame-BOTTOM COVER)	SABIC (E45329, E121562 or E207780)	CX7240 (GG)	Rated V-0, min. 0.75mm, min.90°C ,Refer to Fig.1 for detail
		0.85 (Plastic Frame-TOP COVER)	COVESTRO DEUTSCHLAND AG [PC RESINS] (E41613)	6485 + (z) (f2)	Rated V-1, 115°C, min. 0.75mm, Refer to Fig.2 for detail
* - V-0, V-1, or compliant with UL 746C 20 mm Flame Test					

Plastic Enclosure parts are secured by: Snap-in construction and Adhesive.

No openings designed in the enclosure except for the recessed Input/Output connector.

Model SP0532, CPP-5398:

Pack Model No.	Overall Dimensions, L x W x H, mm	Minimum Thickness, mm	Enclosure Material Manufacturer/Grade	Enclosure Material Type	Enclosure Material Flame Rating at Minimum Thickness*
SP0532, CPP-5398	Approximately 94.00mm X 63.20mm X 13.70mm. (See ILL. 4 for detail)	0.85 (Plastic Frame-BOTTOM/TOP COVER)	SABIC (E45329, E121562 or E207780)	CX7240 (GG)	Rated V-0, min. 0.75mm, min.90°C, Refer to Fig.6 for detail
* - V-0, V-1, or compliant with UL 746C 20 mm Flame Test					

Plastic Enclosure parts are secured by: Snap-in construction and Adhesive.

No openings designed in the enclosure except for the recessed Input/Output connector.

Model SP0526, 32373, CPP-5495:

Pack Model No.	Overall Dimensions, L x W x H, mm	Minimum Thickness, mm	Enclosure Material Manufacturer/G rade	Enclosure Material Type	Enclosure Material Flame Rating at Minimum Thickness*
SP0526, 32373, CPP-5495	Approximatel y 89.2mm X 68.0mm X 21.8mm (See ILL. 6 for detail)	0.85 (Internal Plastic Frame and Plastic covers at sides)	SABIC (E45329, E121562 or E207780)	CX7240 (GG)	Rated V-0, min. 0.75mm, min.90°C , Refer to Fig.9 for detail
		Approximate ly 0.7 (Outer Metal enclosure)	--	AL	Refer to Fig.9 and Ill.10 for detail
* - V-0, V-1, or compliant with UL 746C 20 mm Flame Test					

Plastic Enclosure parts and metal parts are secured by:
Mechanical construction (drawers), screws and adhesive (detail see ILL. 6).

No openings designed in the enclosure except for the recessed Input/Output connector.

Model SP0537, CPP-5411:

Pack Model No.	Overall Dimensions, L x W x H, mm	Minimum Thickness, mm	Enclosure Material Manufacturer/G rade	Enclosure Material Type	Enclosure Material Flame Rating at Minimum Thickness*
SP0537, CPP-5411	Approximatel y 129.00mm X 68.20mm X 17.60mm (See ILL. 8 for detail)	0.85 (Plastic Frame- BOTTOM/TOP COVER)	SABIC (E45329, E121562 or E207780)	CX7240 (GG)	Rated V-0, min. 0.75mm, min.90°C, Refer to Fig.15 for detail
* - V-0, V-1, or compliant with UL 746C 20 mm Flame Test					

Plastic Enclosure parts are secured by: Snap-in construction and Adhesive.

No openings designed in the enclosure except for the recessed Input/Output connector.

3. Battery Protective Circuitry - Consists of the following:

Component Type	Component Location	Component Manufacturer	Component Part No.	Component Ratings
IC (U2)	PWB	XYSEMI	XB7608AJ	--

4. Power Bank Charging/Discharging DC/DC Circuitry - Consists of the following:

Component Type	Component Location	Component Manufacturer	Component Part No.	Component Ratings
IC (U1)	PWB	INJOINIC	IP5306	--
Inductance (L1)		Various	Various	1uH
IC (U2)		XYSEMI	XB7608AJ	--

See the following illustrations for details of protective circuitry:

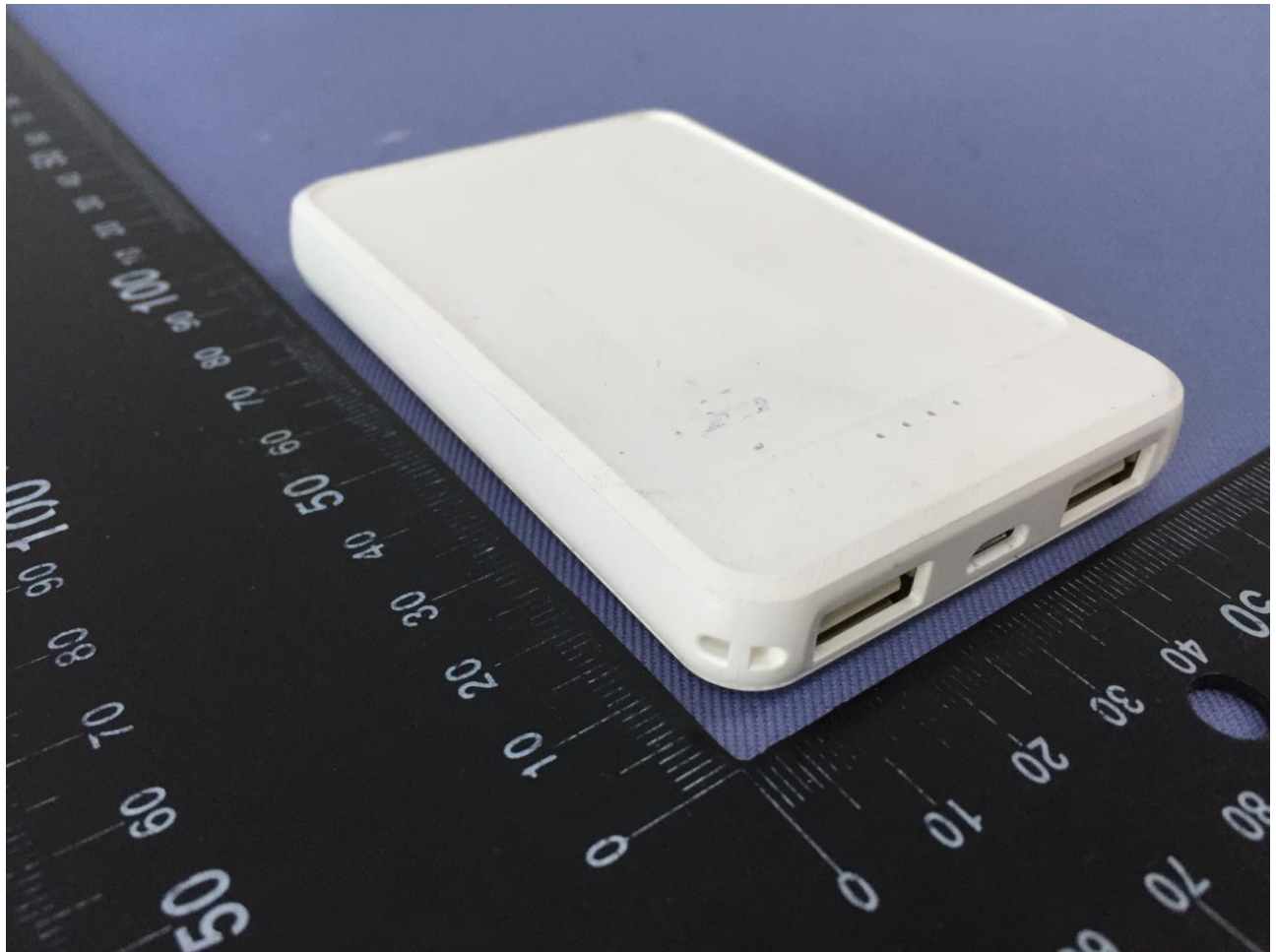
Battery Pack Model	Test Ref. No.
SP0415	ILL.2
SP0526	TR. ILL. 3.6
SP0537	TR. ILL. 4.5.7

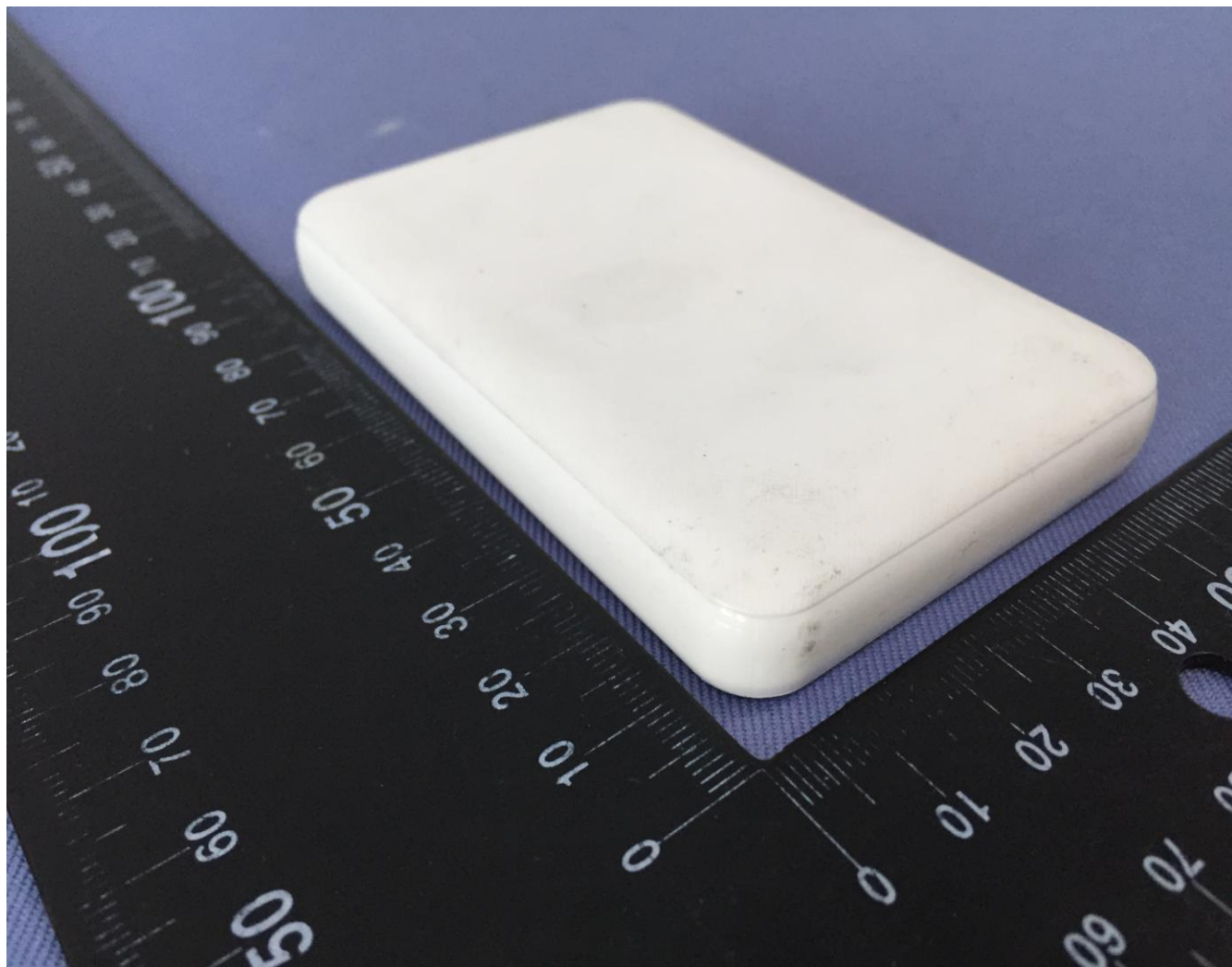
5. Input/ Output Connector - Constructed as noted below: R/C (ECBT2 or RTRT2), minimum 30 V or made of material with minimum flammability Class V-1.

Inadvertent shorting of connector prevented by the following:

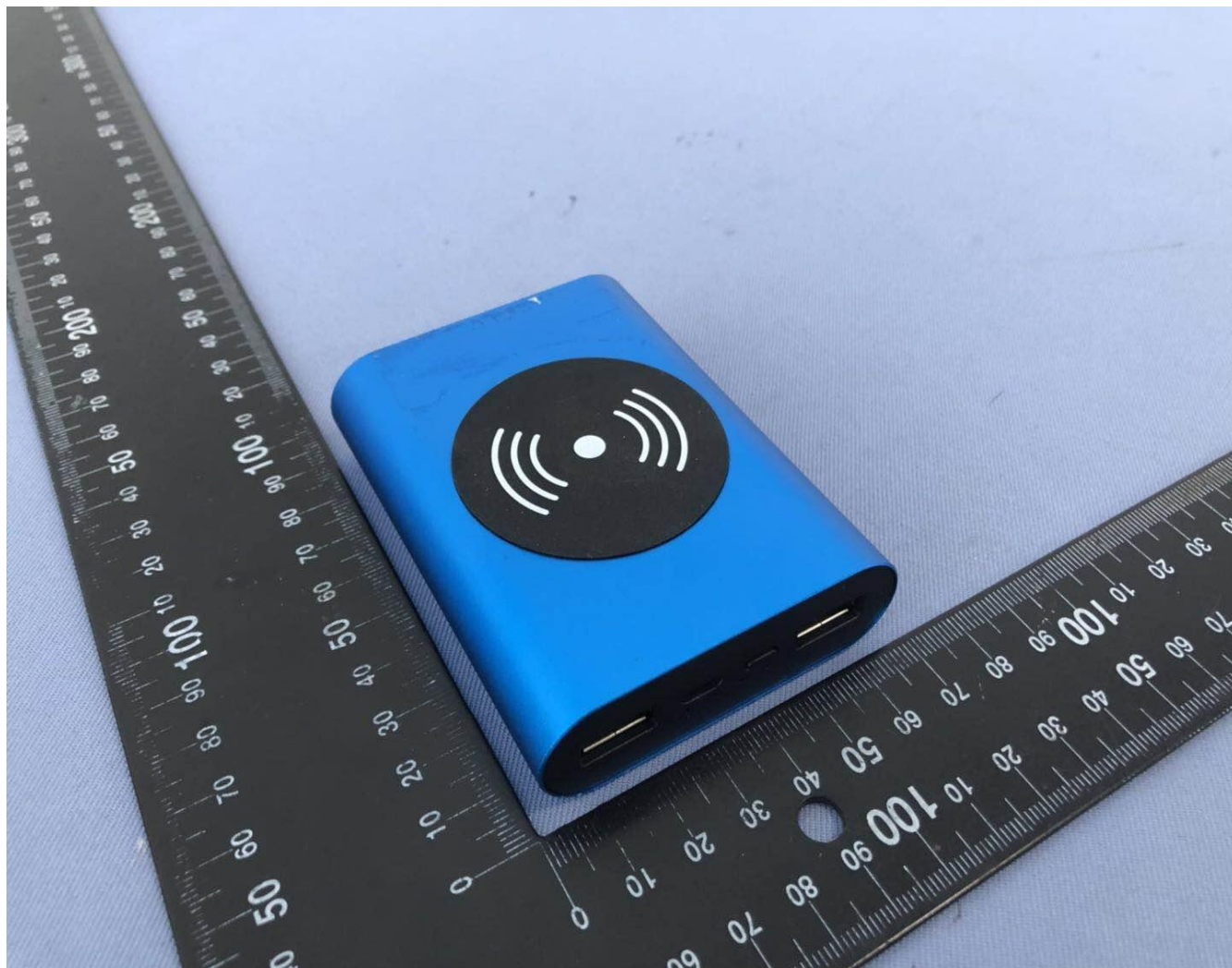
Description of Mechanism to Prevent Inadvertent Short Circuiting of Connector Terminals
Recessing construction (Construction as Fig.1)

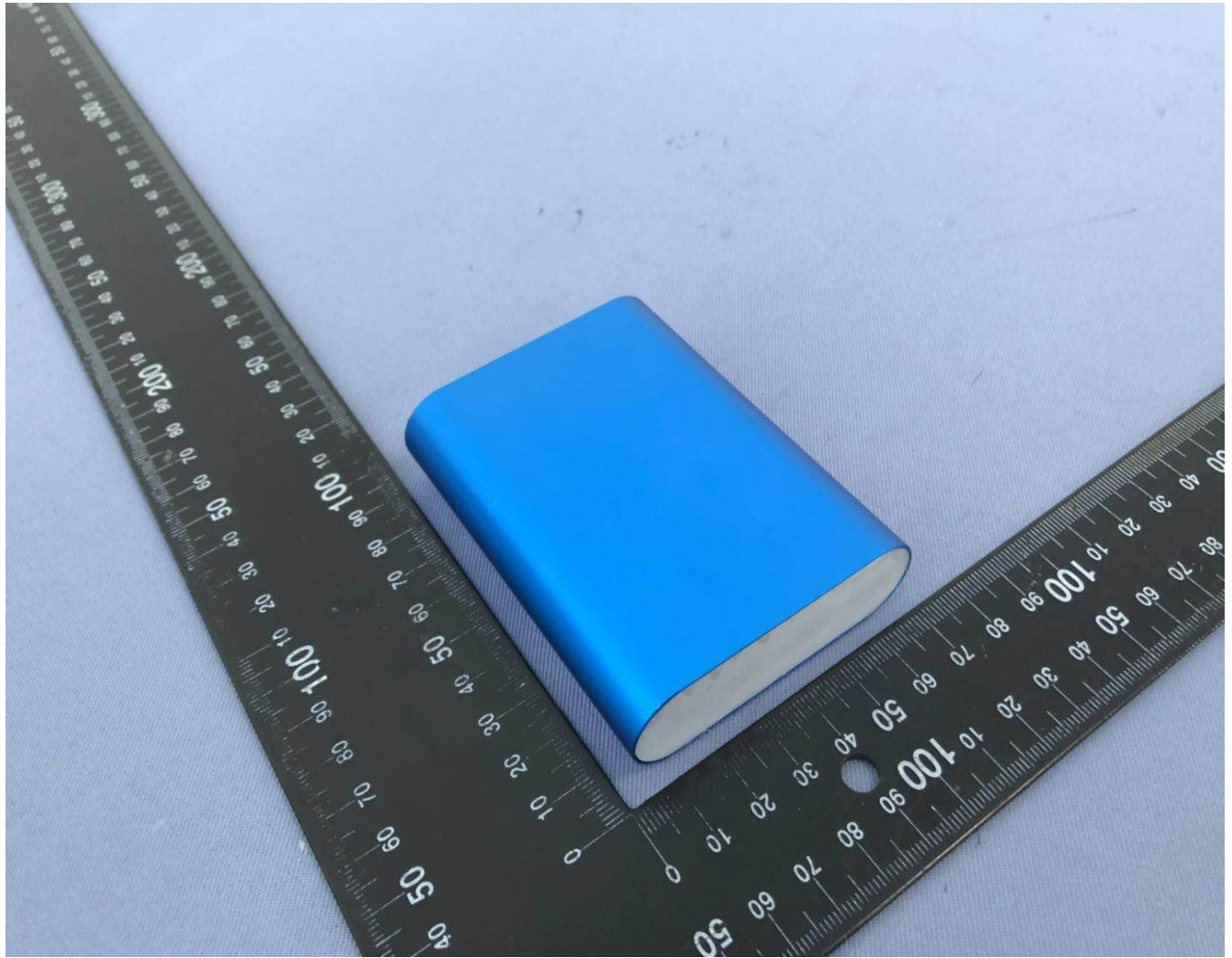
6. Insulation (Optional) - R/C (OANZ2 or QMFZ2), located between cell and other parts, minimum 100 degree C or designated "Flame Retardant", except for less than or equal to 2cm³.
7. Printed Wiring Board - R/C (ZPMV2 or ZPXK2), Min. V-1, Min. 130 degree C, provided for mounting of circuit, which secured in place by cover enclosure internal recessing construction.
- *8. Internal Wirng - R/C (AVLV2), routed away from sharp edge, Rated minimum **105** degree C, minimum 30 V, minimum 24 AWG, FEP, PTFE, PVC, TFE, neoprene, or surface marked VW-1 or FT-1.
9. Plastic foam(between cell and enclosure, see Fig.3 for details)- R/C (QMFZ2), stuck by double adhesive tape, minimum v-2, except less than or equal to 2cm³.
10. Polymeric Adhesive system(sealed enclosure and fixed cell, see Fig.3 for details) - R/C(QOQW2), Type UT100B, by CEMEDINE CO LTD(E324741), RATED - 35 degree C to 80 degree C.

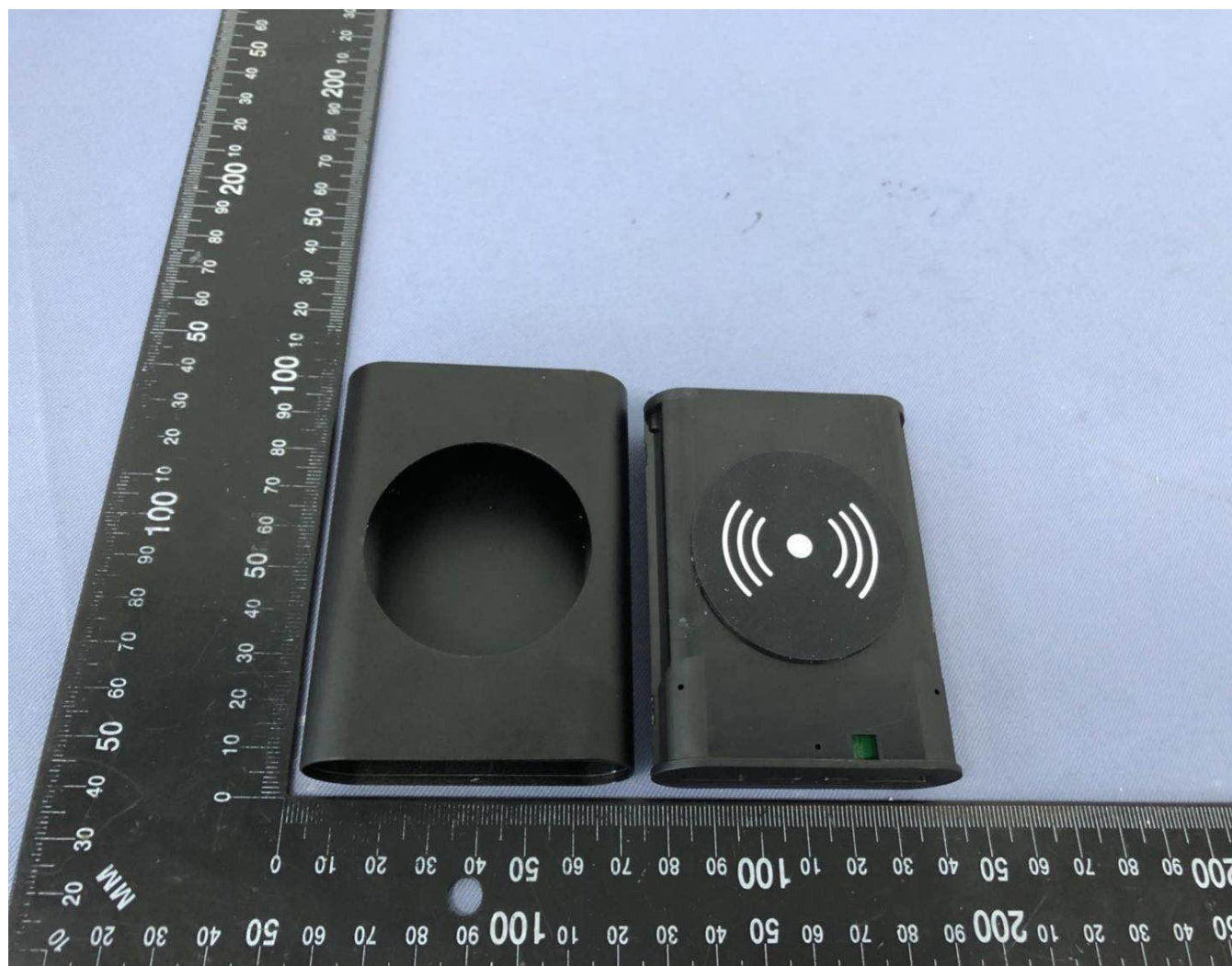


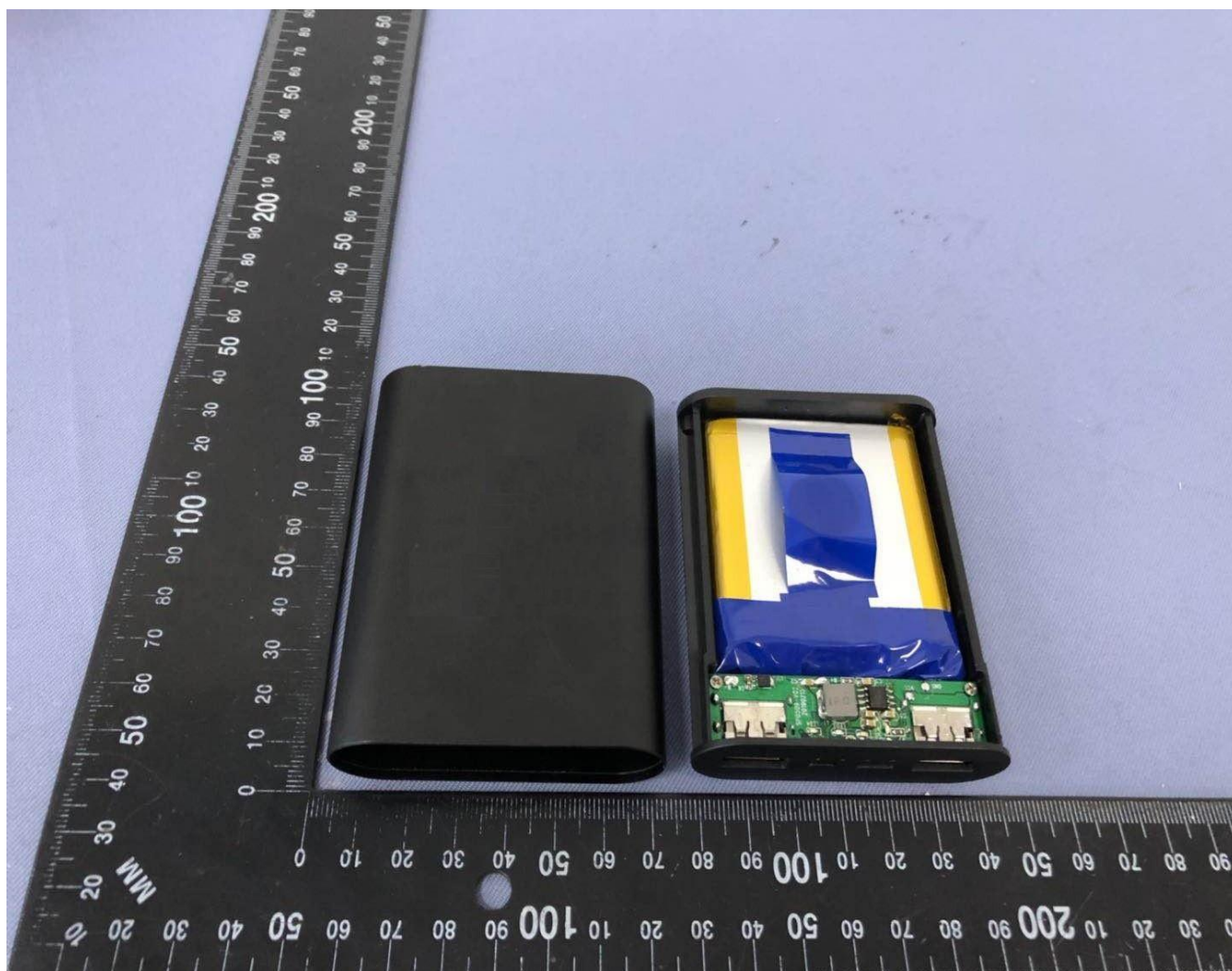


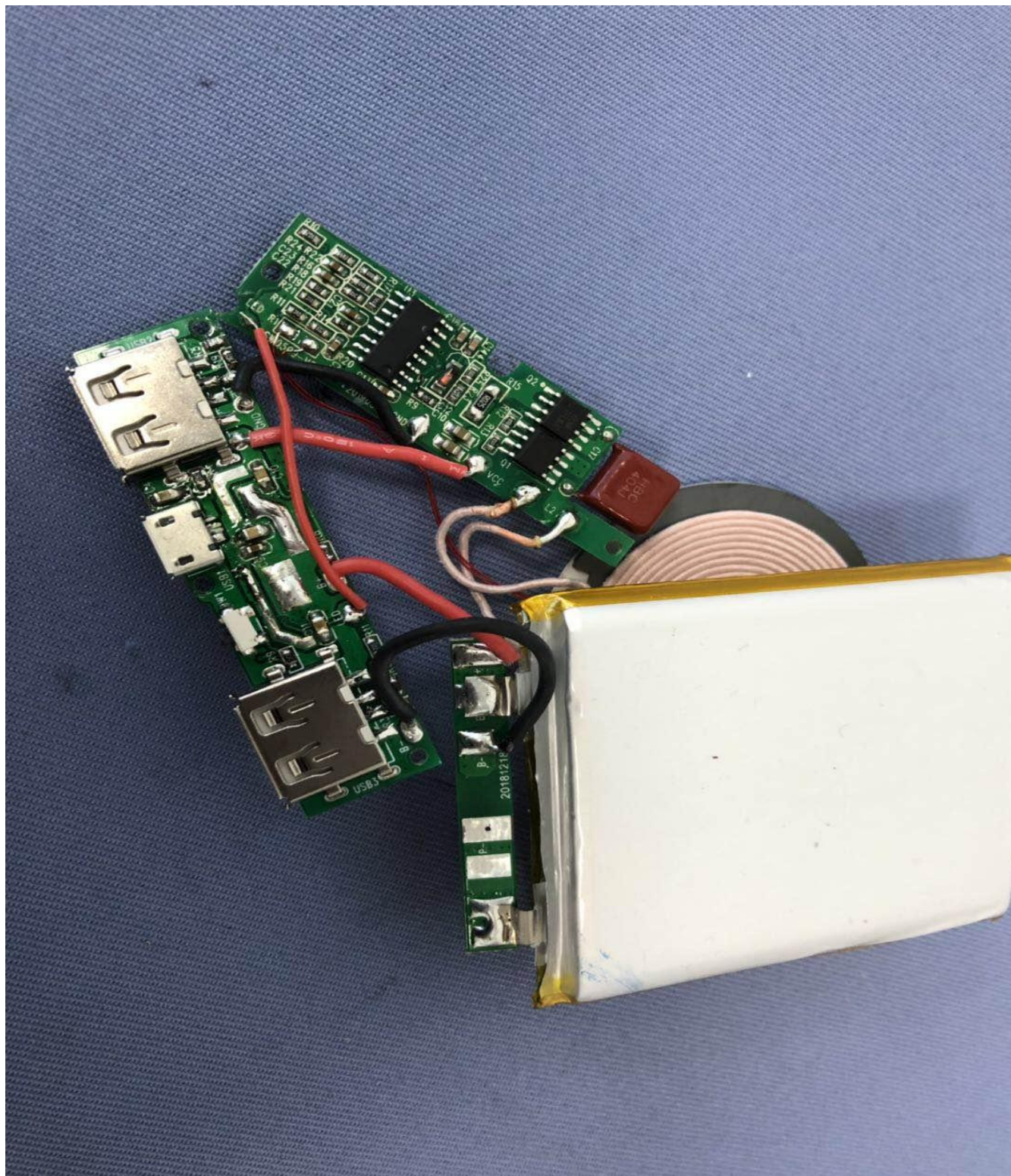


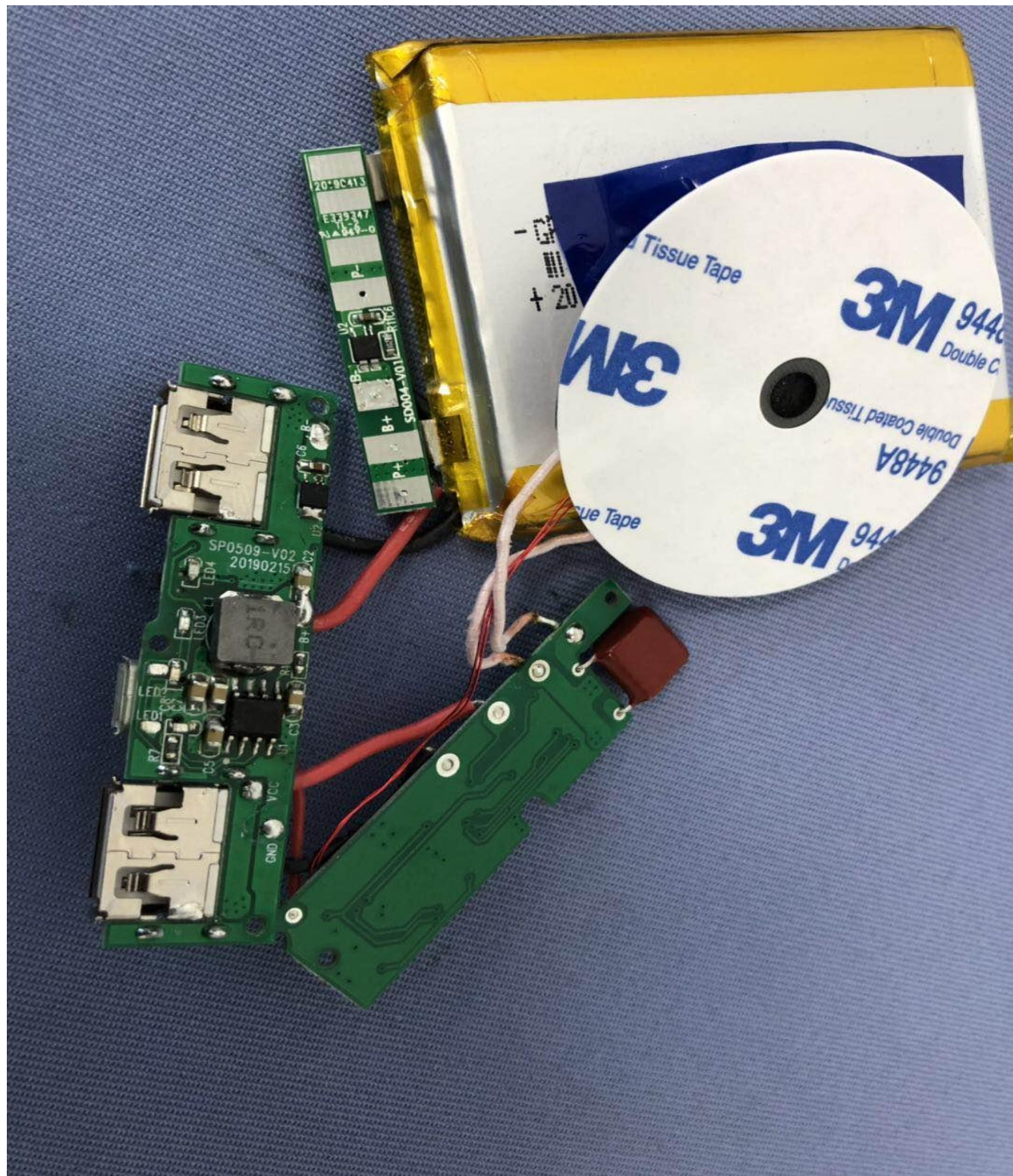


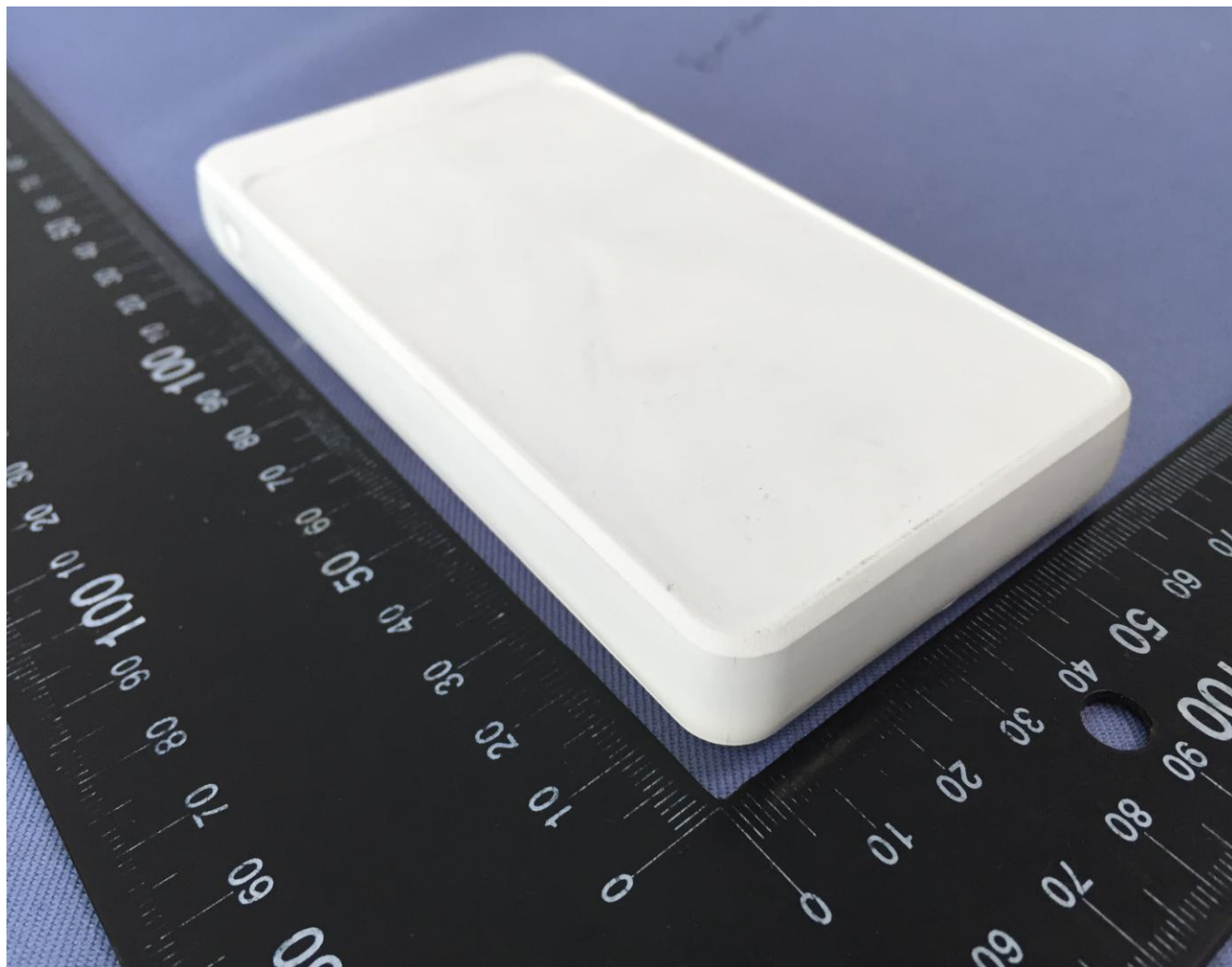




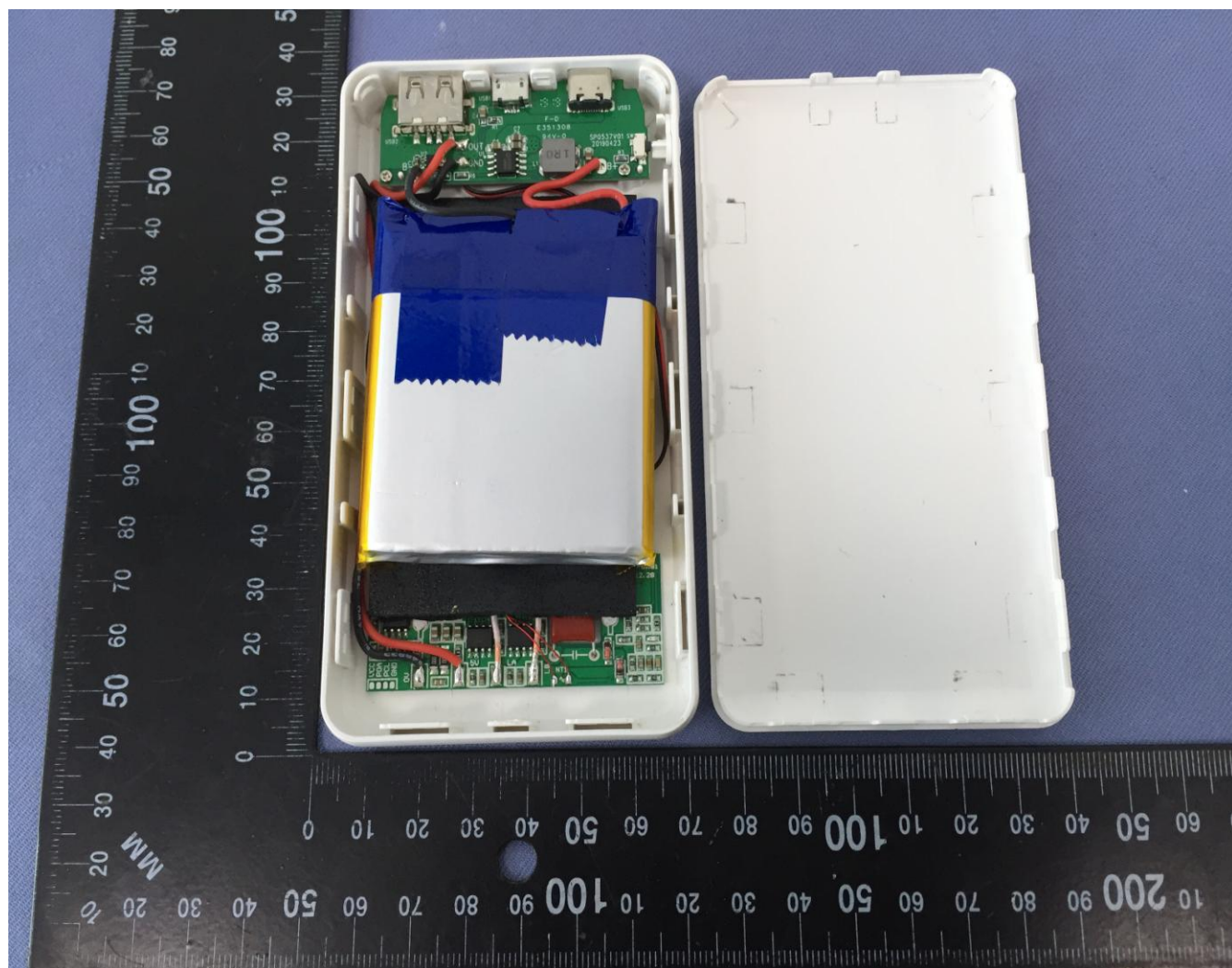


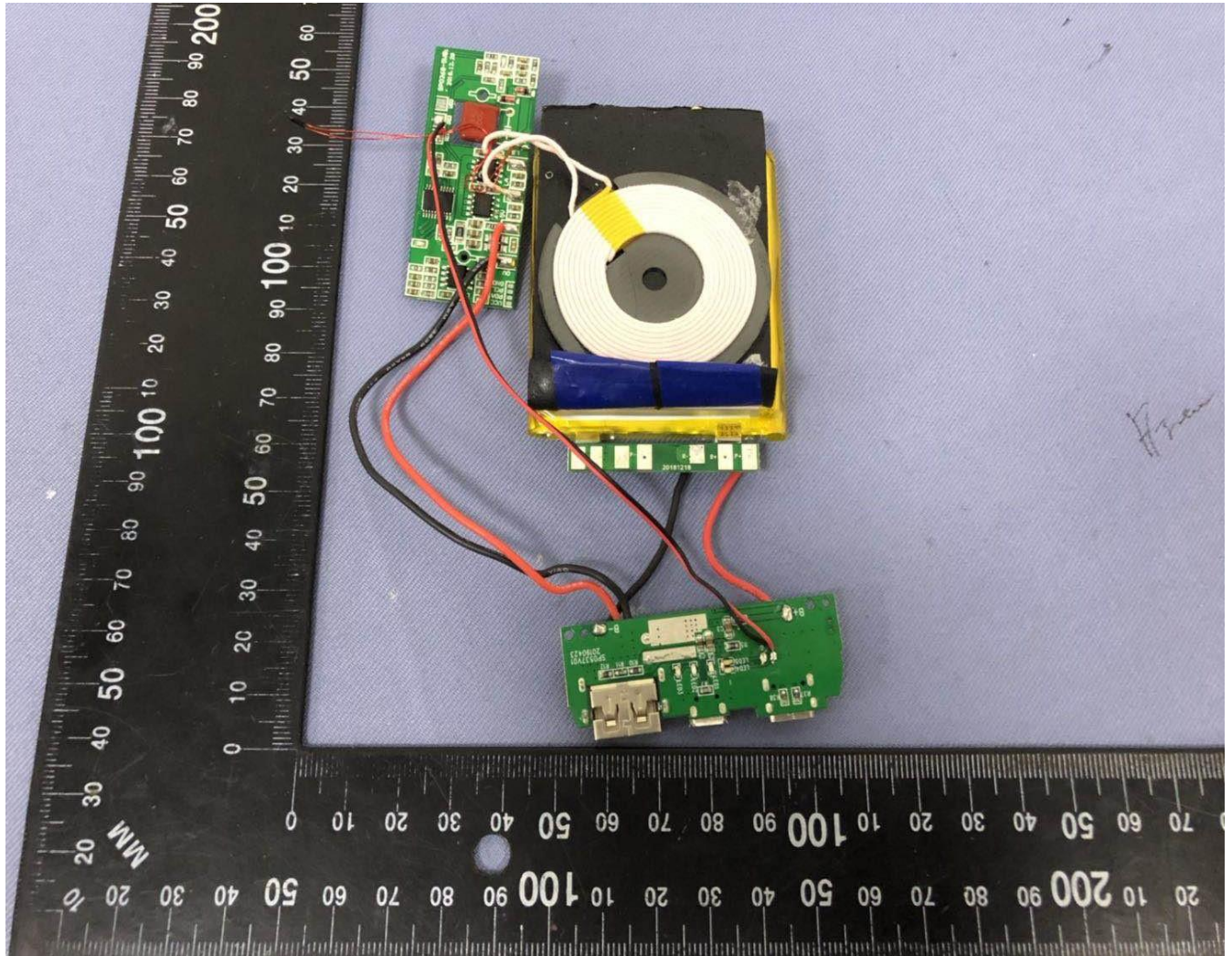


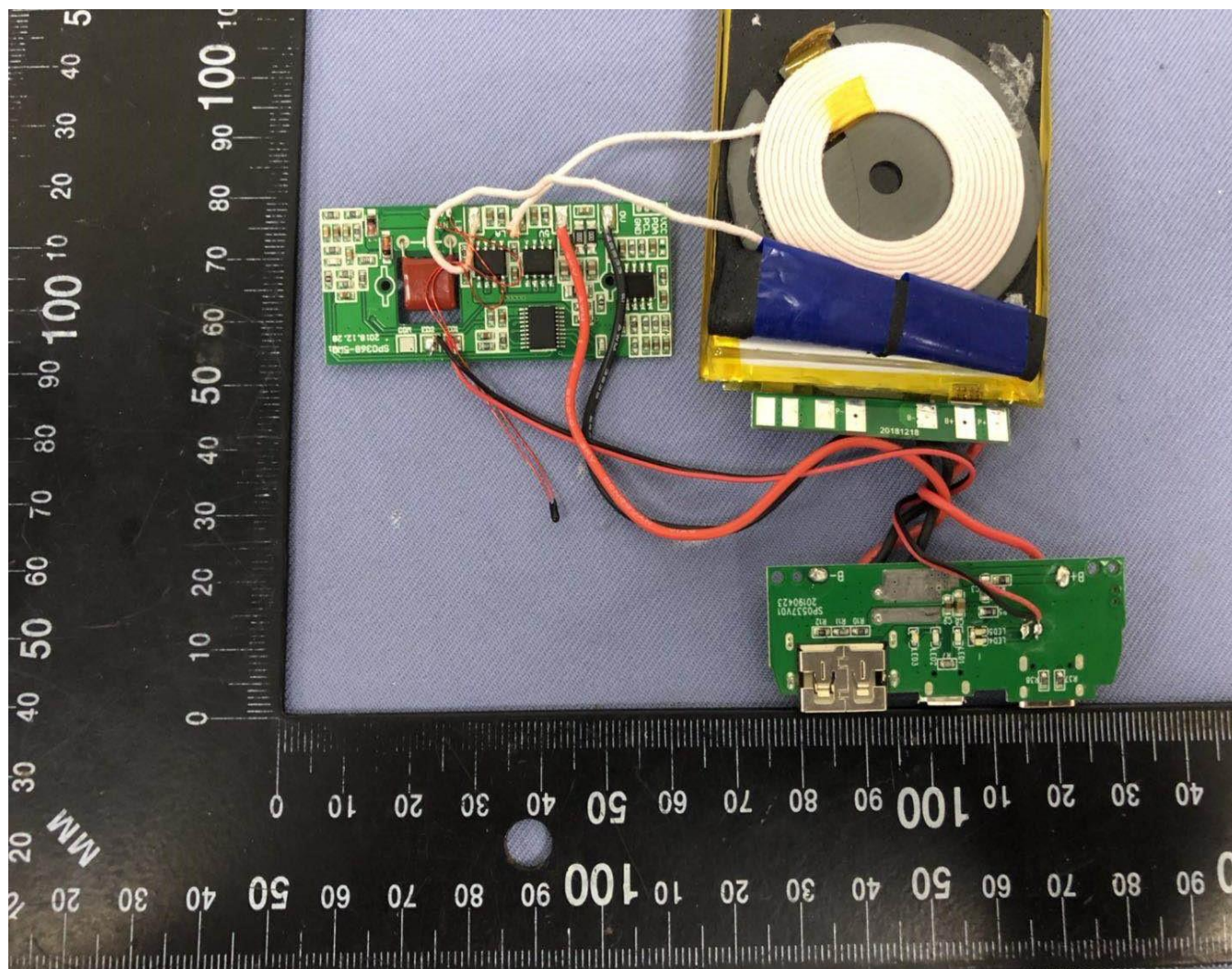


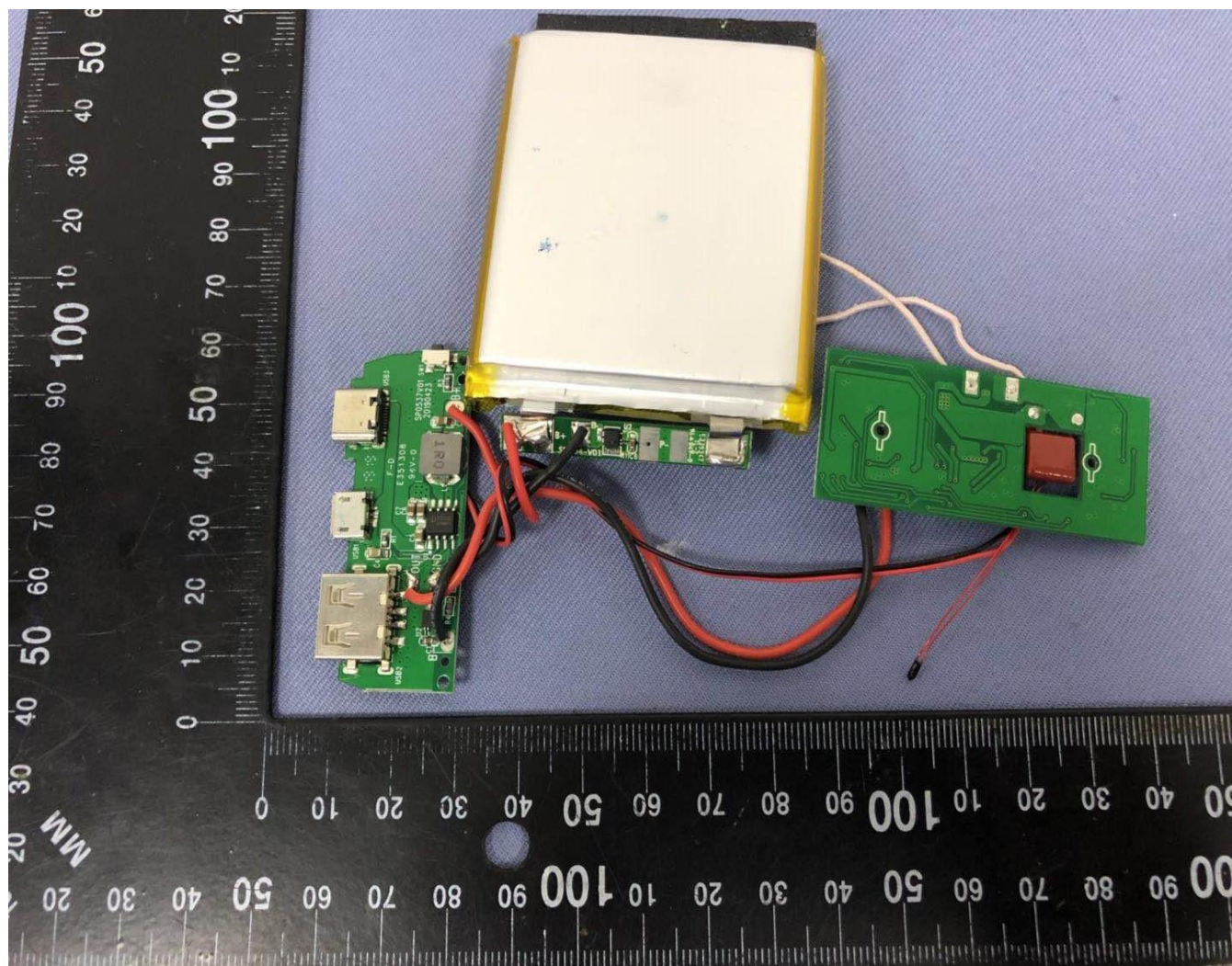












TEST RECORD NO. 2

SAMPLES:

Samples of the Power Banks, Model(s): SP0532, CPP-5398, as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test for alternate enclosure base on model SP0415. (in project 4789077968)

Model difference:

Basic Model(s)	Derivative Model(s)	Model Differences
SP0415	UQ9750, CPP-5422	Identical to Model SP0415 except for model designation
SP0415	SP0532	Identical to Model SP0415 except for enclosure shape.
SP0532	CPP-5398	Identical to Model SP0532 except for model designation

ELECTRICAL RATING:

USB1 (Micro USB)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	2.0
USB2	Output Port # 1 Rated Voltage, Vdc	5.0
	Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 1 Rated Current, A	2.1
	Output Port # 1 Rated Capacity, mAh	2680
USB3	Output Port # 2 Rated Voltage, Vdc	5.0
	Output Port # 2 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 2 Rated Current, A	2.1
	Output Port # 2 Rated Capacity, mAh	2680
All models	Manufacturer's Maximum Recommended Ambient, °C	0~45°C for Charging; 0~45°C for Discharging

INTERNAL BATTERY CHARGING PARAMETERS:

Pack Model	Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc
SP0532, CPP-5398	1.8	4.2	3.6	4.23

GENERAL:

Test results relate only to the items tested.

All tests are conducted at GUANGDONG UTL CO., LTD. under WTDP.
(Address: Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China).

Only following tests were conducted necessary on model SP0532 for alternate enclosure:

Test Conducted	UL 2056 Section Reference / (UL/CSA 60950-1 Section Reference)	Compliant Results? [Y] [N] [N/A]	Comments
Battery Pack Component Temperature Test, Battery Pack Surface Temperature Test (UL 2056); Lithium Ion System (UL 2056); Heating Test (UL 60950-1/CSA C22.2 No. 60950-1-07); Energy Hazard Measurements (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1, 8.6-8.8 8.1 (4.5) (2.1.1.5)	Y	--
250 N Steady Force Test (UL 2056); Steady Force Tests 250N (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.4)	Y	--
Mold Stress Relief Test (UL 2056); Stress Relief (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.7)	Y	--
Drop Impact Test (UL 2056); Drop (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.6)	Y	--

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in Outline of Investigation for Safety of Power Banks, the Issue 2 of UL 2056, including revisions through revision date November 03, 2015.

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in the U.S. Standard for Outline of Investigation for Safety of Power Banks, UL 2056, Second Edition, including revisions through revision date November 03, 2015 and Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report. Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. UL shall not otherwise be responsible to anyone for the use of or reliance upon the contents of this Report.

Test Record by::

Selina Shi
Engineer Project Associate

Reviewed by:

Alvin Peng
Lead Project Engineer

TEST RECORD NO. 3

SAMPLES:

Samples of the Power Banks, Model(s): SP0526, 32373, CPP-5495, as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test for alternate enclosure , PWB layout and adding wireless board base on model SP0415 (in project 4789061337).

Model difference:

Basic Model(s)	Derivative Model(s)	Model Differences
SP0415	UQ9750, CPP-5422	Identical to Model SP0415 except for model designation
SP0415	SP0526	Identical to Model SP0415 except for enclosure, PCB layout, model designation and added wireless board.
SP0526	32373, CPP-5495	Identical to Model SP0526 except for model designation

ELECTRICAL RATING:

USB1 (Micro USB)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	Max. 3.0A for model SP0526
USB2	Output Port # 1 Rated Voltage, Vdc	5.0
	Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 1 Rated Current, A	2.1
	Output Port # 1 Rated Capacity, mAh	2500 for model SP0526
USB3 (Model SP0415, SP0532, SP0526)	Output Port # 2 Rated Voltage, Vdc	5.0
	Output Port # 2 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 2 Rated Current, A	2.1
	Output Port # 2 Rated Capacity, mAh	2500 for model SP0526
Wireless output	Output Port # 3 Rated Voltage, Vdc	5.0
	Output Port # 3 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 3 Rated Current, A	1.0
	Output Port # 3 Rated Capacity, mAh	2100 (Wireless)
All models	Manufacturer's Maximum Recommended Ambient, °C	0~45°C for Charging; 0~45°C for Discharging

INTERNAL BATTERY CHARGING PARAMETERS:

Pack Model	Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc
SP0526, 32373, CPP-5495	1.8	4.2	3.6	4.23

GENERAL:

Test results relate only to the items tested.

All tests are conducted at GUANGDONG UTL CO., LTD. under WTD.P.
(Address: Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China).

Only following tests were conducted necessary on model SP0532 for alternate enclosure:

Test Conducted	UL 2056 Section Reference / (UL/CSA 60950-1 Section Reference)	Compliant Results? [Y] [N] [N/A]	Comments
Battery Pack Component Temperature Test, Battery Pack Surface Temperature Test (UL 2056); Lithium Ion System (UL 2056); Heating Test (UL 60950-1/CSA C22.2 No. 60950-1-07); Energy Hazard Measurements (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1, 8.6-8.8 8.1 (4.5) (2.1.1.5)	Y	--
250 N Steady Force Test (UL 2056); Steady Force Tests 250N (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.4)	Y	--
Mold Stress Relief Test (UL 2056); Stress Relief (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.7)	Y	--
Drop Impact Test (UL 2056); Drop (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.6)	Y	--
POWER INPUT TEST (UL 2056):	9	Y	--
OVERLOAD OF OUTPUT PORTS TEST (UL 2056):	10	Y	--
CAPACITY VERIFICATION TEST (UL 2056):	12, 13.2	Y	--

Additional following tests were conducted on Models SP0526, 32373, CPP-5495, tests were conducted in UL.

Test Conducted	UL 2738 Section Reference	Compliant Results? [Y] [N] [N/A]	Comments
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST - NORMAL OPERATION	8	Y	-
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST - COMPONENT FAULT TEST	9	Y	-

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, Second Edition Dated January 12, 2018.

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in Outline of Investigation for Safety of Power Banks, the Issue 2 of UL 2056, including revisions through revision date November 03, 2015.

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in the U.S. Standard for Outline of Investigation for Safety of Power Banks, UL 2056, Second Edition, including revisions through revision date November 03, 2015, and the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014, and standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, Second Edition Dated January 12, 2018, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report. Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. UL shall not otherwise be responsible to anyone for the use of or reliance upon the contents of this Report.

Test Record by::

Selina Shi (T)
Engineer Project Associate
Gary Wang (UL2738)
Engineer Project Associate

Reviewed by:

Alvin Peng
Lead Project Engineer

TEST RECORD NO. 4

SAMPLES:

Samples of the Power Banks, Model(s): SP0537, CPP-5411, as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test for alternate enclosure , PWB layout and wireless board base on model SP0526 (in project 4789077940).

Model difference:

Basic Model(s)	Derivative Model(s)	Model Differences
SP0415	UQ9750, CPP-5422	Identical to Model SP0415 except for model designation
SP0415	SP0532	Identical to Model SP0415 except for enclosure shape.
SP0532	CPP-5398	Identical to Model SP0532 except for model designation
SP0415	SP0526	Identical to Model SP0415 except for enclosure, PCB layout, model designation and added wireless board.
SP0526	32373, CPP-5495	Identical to Model SP0526 except for model designation
SP0526	SP0537	Identical to Model SP0526 except for enclosure, PCB layout, wireless board and model designation
SP0537	CPP-5411	Identical to Model SP0537 except for model designation

ELECTRICAL RATING:

USB1 (Micro USB)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	Max. 2.4A
USB2	Output Port # 1 Rated Voltage, Vdc	5.0
	Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 1 Rated Current, A	2.1
	Output Port # 1 Rated Capacity, mAh	2500
USB3 (Type- C) (For model SP0537)	Input Rated Voltage, Vdc	5.0
	Input Rated Current, A	Max. 2.4A for model SP0537
Wireless output	Output Port # 3 Rated Voltage, Vdc	5.0
	Output Port # 3 End-of-Discharge Voltage, Vdc	4.5
	Output Port # 3 Rated Current, A	1.0
	Output Port # 3 Rated Capacity, mAh	2100 (Wireless)
All models	Manufacturer's Maximum Recommended Ambient, °C	0~45°C for Charging; 0~45°C for Discharging

INTERNAL BATTERY CHARGING PARAMETERS:

Pack Model	Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc
SP0526, 32373, CPP-5495	1.8	4.2	3.6	4.23

GENERAL:

Test results relate only to the items tested.

All tests are conducted at GUANGDONG UTL CO., LTD. under WTD.P.
(Address: Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China).

Only following tests were conducted necessary on model alternate enclosure , PWB layout and wireless board base on model SP0537:

Test Conducted	UL 2056 Section Reference / (UL/CSA 60950-1 Section Reference)	Compliant Results? [Y] [N] [N/A]	Comments
Battery Pack Component Temperature Test, Battery Pack Surface Temperature Test (UL 2056); Lithium Ion System (UL 2056); Heating Test (UL 60950-1/CSA C22.2 No. 60950-1-07); Energy Hazard Measurements (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1, 8.6-8.8 8.1 (4.5) (2.1.1.5)	Y	--
250 N Steady Force Test (UL 2056); Steady Force Tests 250N (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.4)	Y	--
Mold Stress Relief Test (UL 2056); Stress Relief (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.7)	Y	--
Drop Impact Test (UL 2056); Drop (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 (4.2.6)	Y	--
POWER INPUT TEST (UL 2056):	9	Y	--
OVERLOAD OF OUTPUT PORTS TEST (UL 2056):	10	Y	--
CAPACITY VERIFICATION TEST (UL 2056):	12, 13.2	Y	--

Additional following tests were conducted on Models SP0526, 32373, CPP-5495, tests were conducted in UL.

Test Conducted	UL 2738 Section Reference	Compliant Results? [Y] [N] [N/A]	Comments
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST - NORMAL OPERATION	8	Y	-
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST - COMPONENT FAULT TEST	9	Y	-

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, Second Edition Dated January 12, 2018.

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in Outline of Investigation for Safety of Power Banks, the Issue 2 of UL 2056, including revisions through revision date November 03, 2015.

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in the U.S. Standard for Outline of Investigation for Safety of Power Banks, UL 2056, Second Edition, including revisions through revision date November 03, 2015, and the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014, and standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, Second Edition Dated January 12, 2018, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report. Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. UL shall not otherwise be responsible to anyone for the use of or reliance upon the contents of this Report.

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