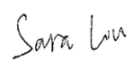


TEST REPORT Electromagnetic compatibility of Radio frequency drivces	
Report Number. :	EFHZ18030048
Date of issue :	2018-Mar-16
Approved by (+signature) :	Sara Liu 
Issued Laboratory name..... :	Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch
Address..... :	Room 301-307, 3/F, 1st Building, Huaye Hi-Tech Industrial Park, No.1180, Bin'an Road, Binjiang District, Hangzhou, Zhejiang Province, China, 310052
Applicant's name..... :	Xindao B.V.
Address..... :	P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Manufacturer's name :	/
Address..... :	/
Standard(s)..... :	FCC 47 CFR PART 15 Subpart B ANSI C63.4: 2014
Test item description :	4.000 mAh type C powerbank
Trade Mark :	N/A
Model/Type reference :	P324.26
Rating(s)..... :	Input: DC 5 V; 1000 mA Output: DC 5 V; 2.1 A Capacity: 4000 mAh
Date of receipt of test item :	2018-Mar-01
Date (s) of performance of test:	2018-Mar-14
Summary of Test Results :	Pass
The Summary of Test Results based on a technical opinion belongs to the standard(s).	
General disclaimer: This report shall not be reproduced except in full, without the written approval of Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch. The test results in the report only apply to the tested sample.	

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1. General Information

1.1. Description of device (EUT)

Test item description..... :	4.000 mAh type C powerbank
Model/Type reference..... :	P324.26
Rating(s)..... :	Input: DC 5 V; 1000 mA Output: DC 5 V; 2.1 A Capacity: 4.000 mAh
AC Line..... :	☐ Shielded ☐ Unshielded, ☐ Detachable ☐ Un-detachable ☒ No applicable ☐ Length:
DC Line..... :	☐ Shielded ☒ Unshielded, ☒ Detachable ☐ Un-detachable ☐ No applicable ☒ Length: 0.4 m

1.2. Difference between model numbers

None

1.3. EUT Operation modes

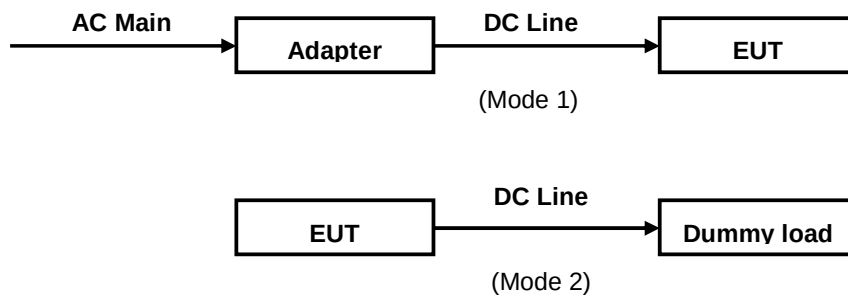
Mode #	Description	Test voltage
1	Charging	DC 5 V (Adapter input AC 120 V/ 60 Hz)
2	Discharging	DC 5 V

The Worst Test Mode		
Emission	Limits of disturbance voltage at mains terminals	☒ Mode 1 ☐ Mode 2
	Limits of radiated electromagnetic disturbances	☐ Mode 1 ☒ Mode 2

1.4. Description of support units

Product Type	Manufacturer	Model	Serial No.
Adapter	XIAOMI	MDY-08-EF	160500004189

1.5. Block diagram of test set-up



(EUT: 4.000 mAh type C powerbank)

1.6. General test conditions

Environmental reference conditions

If not defined otherwise by the Technical Committee responsible for the generic standard and/or the product standard the climatic conditions during the tests are to be within the limits specified by the manufacturer for the operation of the EUT and the test equipment.

The climatic conditions during the tests were within the following limits:

Ambient Temperature	Relative Humidity	Air pressure
15 to 35 °C	30 to 60 %	86 kPa – 106 kPa

If explicitly required in the test base (basic) the climatic values are recorded and documented separately for the respective test.

Measurement uncertainties

All tests are subject to measurement uncertainties. The overall measurement uncertainty of a measurement is defined as the range of which can be supposed that it contains the true value with a specified probability.

This probability is 95 % for the generally specified measurement uncertainty (so-called expanded measurement uncertainty).

The limits for emission measurements and the test levels for immunity tests in the applied standards were defined taking into consideration the accuracy limits for measurement and testing equipment required by the basic standards.

All measurement and test results of the EMC laboratory of Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch fulfil the requirements for measurement uncertainties according to the standards applied.

2. Result Summary

FCC 47 CFR PART 15 Subpart B		
Requirement – Test	Result - Remark	Verdict
Classification Class (A or B)	☐ A ☒ B	—
Limits of disturbance voltage at mains terminals	See 4.1	Pass
Limits of radiated electromagnetic disturbances	See 4.2	Pass

Test case verdicts	
- test case does not apply to the test object	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement	F (Fail)

3. List of Test and Measurement Equipment

Disturbance voltage at mains terminals

Equipment	Manufacturer	Model	Serial Number	Cal. Due
LISN	Schwarzbeck	NSLK 8127	8127-892	2018-04-22
EMI Test Receiver	R&S	ESR3	102124	2018-12-22
Pulse Limiter	R&S	ESH3-Z2	357.8810.52	2018-04-22

Radiated electromagnetic disturbances

Equipment	Manufacturer	Model	Serial Number	Cal. Due
RF Preamp Amplifier	EMEC	EM330	060676	2018-12-22
Broadband Antenna	Schwarzbeck	9162	139	2019-04-21
EMI Test Receiver	R&S	ESVS30	829673/011	2018-09-04
EXA signal analyzer	KEYSIGHT	MY56070465	N9010A	2018-12-22

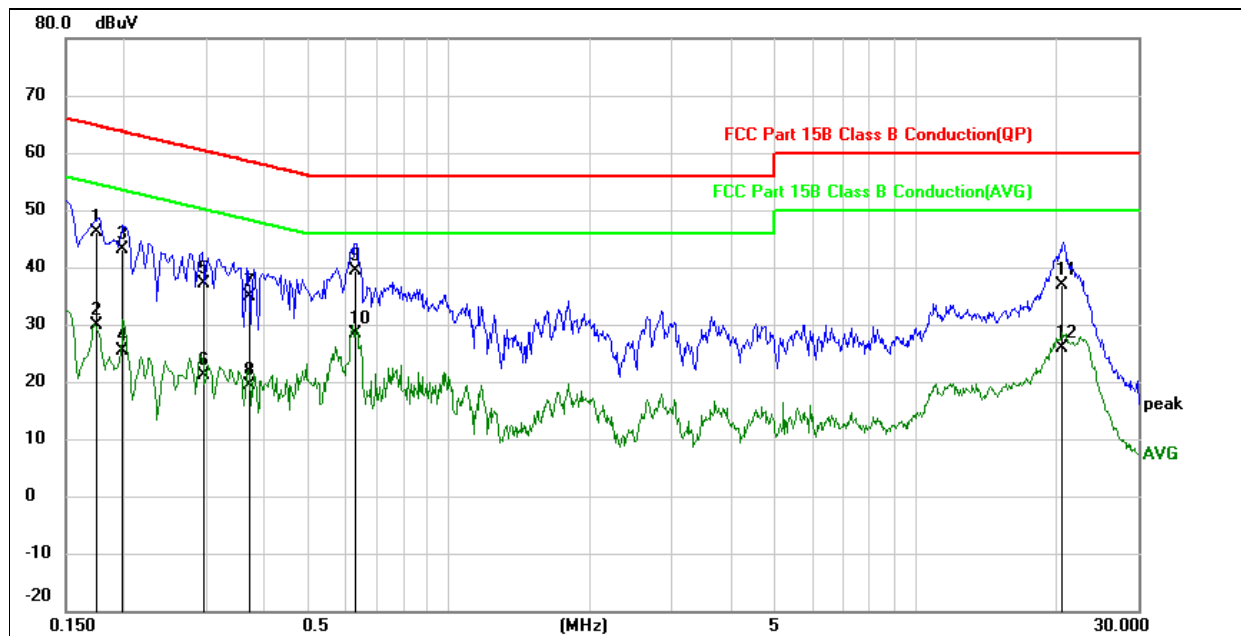
4. Test Conditions and Results

4.1. Limits of disturbance voltage at the mains terminals

Test Requirement:	FCC 47 CFR PART 15 Subpart B ANSI C63.4: 2014		
Test Frequency Range:	150 kHz to 30 MHz		
Limit:	Limits – Class A		
	Frequency (MHz)	Limit dB (μV)	
		Quasi-Peak	Average
	0.15 to 0.5	79	66
	0.5 to 30	73	60
	Limits – Class B		
	Frequency (MHz)	Limit dB (μV)	
		Quasi-Peak	Average
	0.15 to 0.5	66 to 56	56 to 46
	0.5 to 5	56	46
	5 to 30	60	50
Test Method:	The AMN placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment were at least 0.8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.		
Test Information			
Ambient Temperature:	15 to 35 °C		
Relative Humidity:	30 to 60 %		
Test model(s):	P324.26		
Test date:	2018-Mar-14		
Test Location:	No.2, Wu Song Road, Yu Wu Industrial Area, Dongcheng District, Dongguan, Guangdong Province, China 523117		
Test mode:	☒ Mode 1 ☐ Mode 2		
Test results:	☒ Pass ☐ Fail ☐ N/A		
Remark:	/		

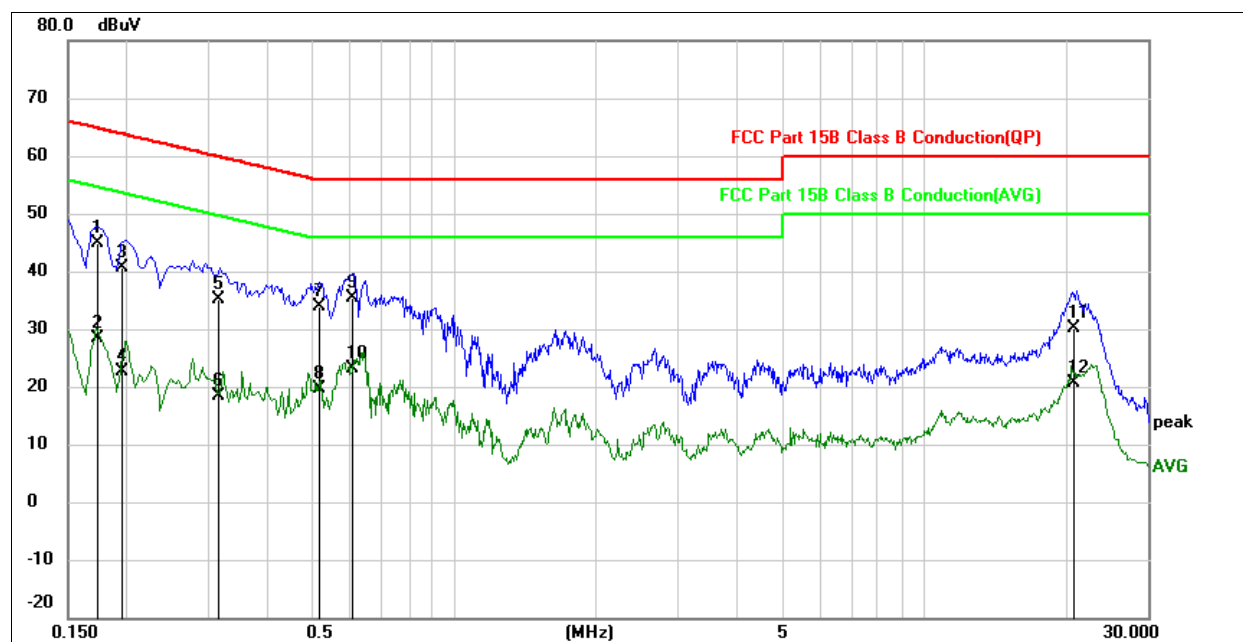
Graphical representation

EUT:	4.000 mAh type C powerbank	Probe:	L1
Model:	P324.26	Power Source:	AC 120 V/60 Hz
Mode:	Charging	Date:	2018/3/14
Temp./Hum.(%RH):	23/56% RH	Time:	11:38:29
Standard:	FCC Part 15B Class B Conduction(QP)		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1736	36.43	9.80	46.23	64.79	-18.56	QP
2	0.1736	20.16	9.80	29.96	54.79	-24.83	AVG
3	0.1971	33.22	9.81	43.03	63.73	-20.70	QP
4	0.1971	15.58	9.81	25.39	53.73	-28.34	AVG
5	0.2959	27.31	9.83	37.14	60.36	-23.22	QP
6	0.2959	11.40	9.83	21.23	50.36	-29.13	AVG
7	0.3748	24.97	9.82	34.79	58.39	-23.60	QP
8	0.3748	9.54	9.82	19.36	48.39	-29.03	AVG
9	0.6305	29.66	9.83	39.49	56.00	-16.51	QP
10	0.6305	18.43	9.83	28.26	46.00	-17.74	AVG
11	20.6959	27.43	9.55	36.98	60.00	-23.02	QP
12	20.6959	16.25	9.55	25.80	50.00	-24.20	AVG

EUT:	4.000 mAh type C powerbank	Probe:	N
Model:	P324.26	Power Source:	AC 120 V/60 Hz
Mode:	Charging	Date:	2018/3/14
Temp./Hum.(% RH):	23/56% RH	Time:	11:42:09
Standard:	FCC Part 15B Class B Conduction(QP)		
Note:			



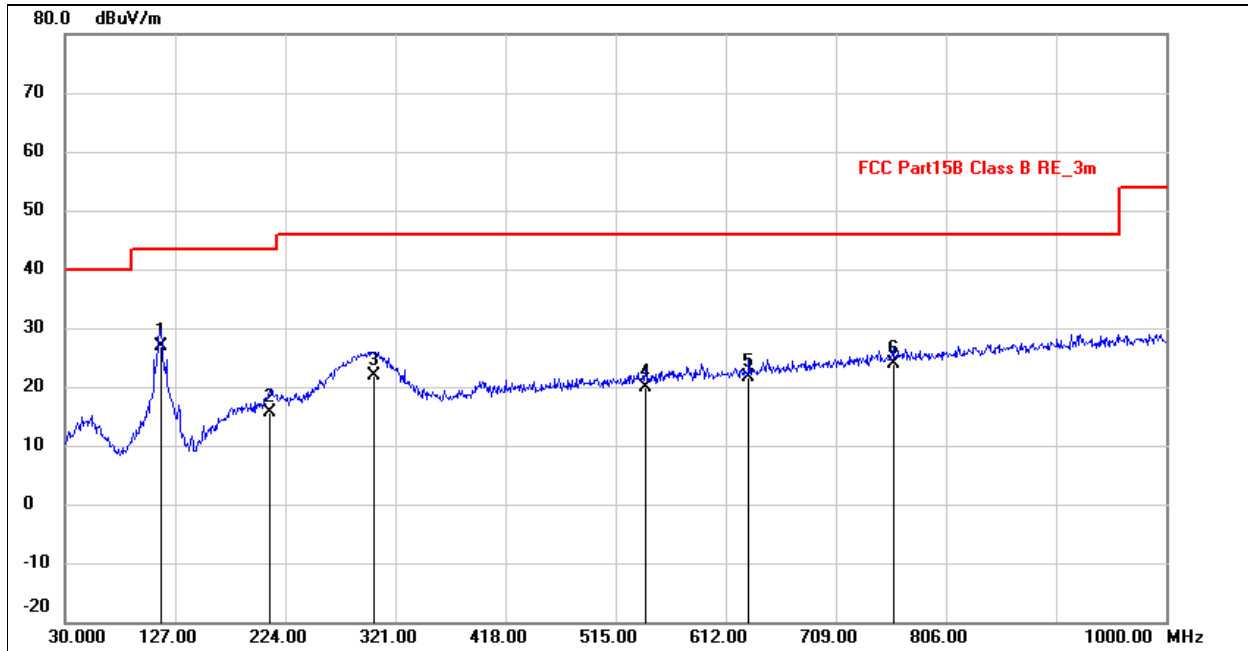
No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1734	34.85	9.92	44.77	64.80	-20.03	QP
2	0.1734	18.35	9.92	28.27	54.80	-26.53	AVG
3	0.1952	30.81	9.93	40.74	63.81	-23.07	QP
4	0.1952	12.65	9.93	22.58	53.81	-31.23	AVG
5	0.3132	25.10	9.95	35.05	59.89	-24.84	QP
6	0.3132	8.49	9.95	18.44	49.89	-31.45	AVG
7	0.5103	23.92	9.95	33.87	56.00	-22.13	QP
8	0.5103	9.64	9.95	19.59	46.00	-26.41	AVG
9	0.6072	25.33	9.95	35.28	56.00	-20.72	QP
10	0.6072	13.24	9.95	23.19	46.00	-22.81	AVG
11	20.8738	20.45	9.61	30.06	60.00	-29.94	QP
12	20.8738	10.97	9.61	20.58	50.00	-29.42	AVG

4.2. Limits of radiated electromagnetic disturbances

Test Requirement:	FCC 47 CFR PART 15 Subpart B ANSI C63.4: 2014									
Test Frequency Range:	30 MHz to 1 GHz									
Limit:	Limits – Class A at 3m									
	<table border="1"> <tr> <th>Frequency (MHz)</th><th>Quasi-Peak</th></tr> <tr> <td>30 to 88</td><td>49</td></tr> <tr> <td>88 to 216</td><td>53.5</td></tr> <tr> <td>216 to 960</td><td>56.4</td></tr> <tr> <td>960 to 1000</td><td>59.5</td></tr> </table>	Frequency (MHz)	Quasi-Peak	30 to 88	49	88 to 216	53.5	216 to 960	56.4	960 to 1000
Frequency (MHz)	Quasi-Peak									
30 to 88	49									
88 to 216	53.5									
216 to 960	56.4									
960 to 1000	59.5									
Limits – Class B at 3m										
<table border="1"> <tr> <th>Frequency (MHz)</th><th>Quasi-Peak</th></tr> <tr> <td>30 to 88</td><td>40</td></tr> <tr> <td>88 to 216</td><td>43.5</td></tr> <tr> <td>216 to 960</td><td>46</td></tr> <tr> <td>960 to 1000</td><td>54</td></tr> </table>	Frequency (MHz)	Quasi-Peak	30 to 88	40	88 to 216	43.5	216 to 960	46	960 to 1000	54
Frequency (MHz)	Quasi-Peak									
30 to 88	40									
88 to 216	43.5									
216 to 960	46									
960 to 1000	54									
Test Method:	Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter below 1 GHz and 3 meter above 1 GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1 GHz and average detector above 1 GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.									
Test Information										
Ambient Temperature:	15 to 35 °C									
Relative Humidity:	30 to 60 %									
Test model(s):	P324.26									
Test date:	2018-Mar-14									
Test Location:	No.2, Wu Song Road, Yu Wu Industrial Area, Dongcheng District, Dongguan, Guangdong Province, China 523117									
Test mode:	☐ Mode 1 ☒ Mode 2									
Test results:	☒ Pass ☐ Fail ☐ N/A									
Remark:	/									

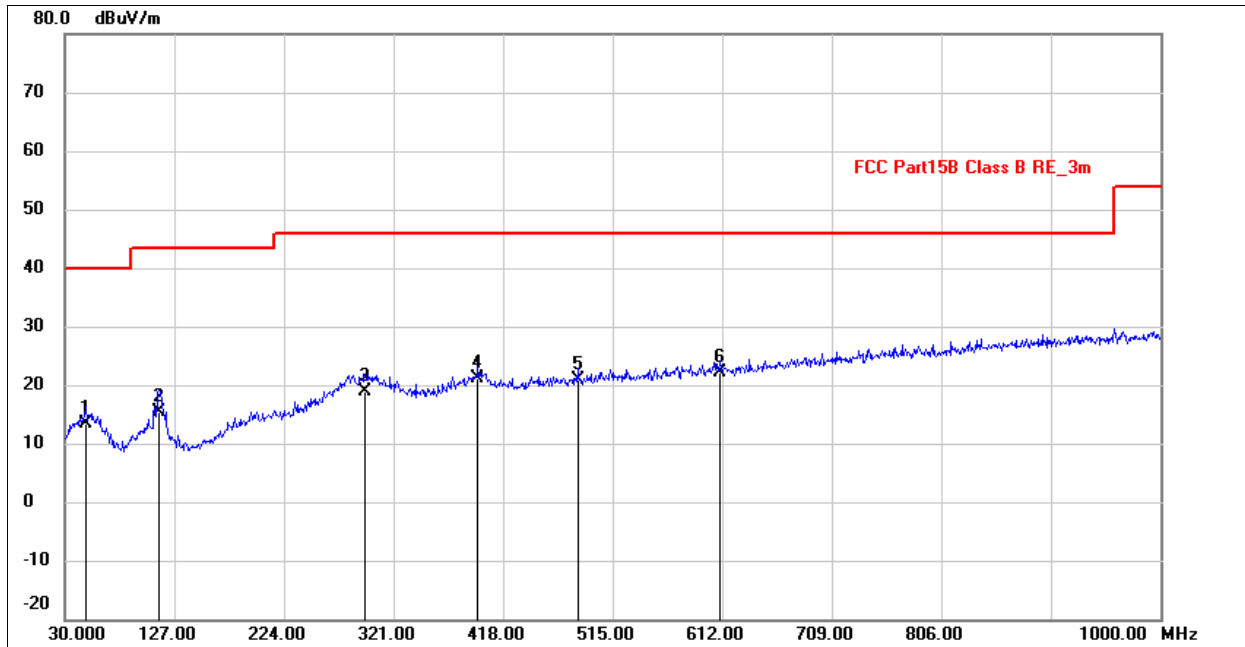
Graphical representation

EUT:	4.000 mAh type C powerbank	Polarization:	Horizontal
Model:	P324.26	Power Source:	DC 5V
Mode:	Discharging	Date:	2018/3/14
Temp./Hum.(% RH):	23/54% RH	Time:	11:23:23
Standard:	FCC Part15B Class B RE_3m	Distance:	3m
Note:			



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	114.3900	46.84	-19.90	26.94	43.50	-16.56	QP
2	210.4200	33.88	-18.24	15.64	43.50	-27.86	QP
3	301.6000	37.44	-15.44	22.00	46.00	-24.00	QP
4	541.1900	30.32	-10.39	19.93	46.00	-26.07	QP
5	632.3700	30.45	-8.94	21.51	46.00	-24.49	QP
6	759.4400	31.09	-7.10	23.99	46.00	-22.01	QP

EUT:	4.000 mAh type C powerbank	Polarization:	Vertical
Model:	P324.26	Power Source:	DC 5V
Mode:	Discharging	Date:	2018/3/14
Temp./Hum.(% RH):	23/54% RH	Time:	11:25:58
Standard:	FCC Part15B Class B RE_3m	Distance:	3m
Note:			



The test items were subcontracted to other lab.

5. Photo of test setup

Set-up for disturbance voltage at the mains terminals



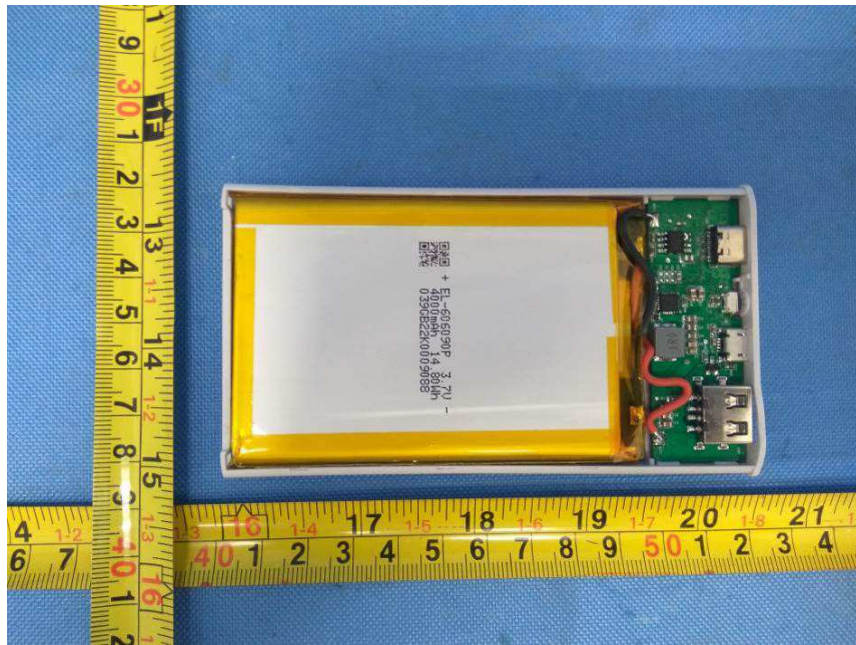
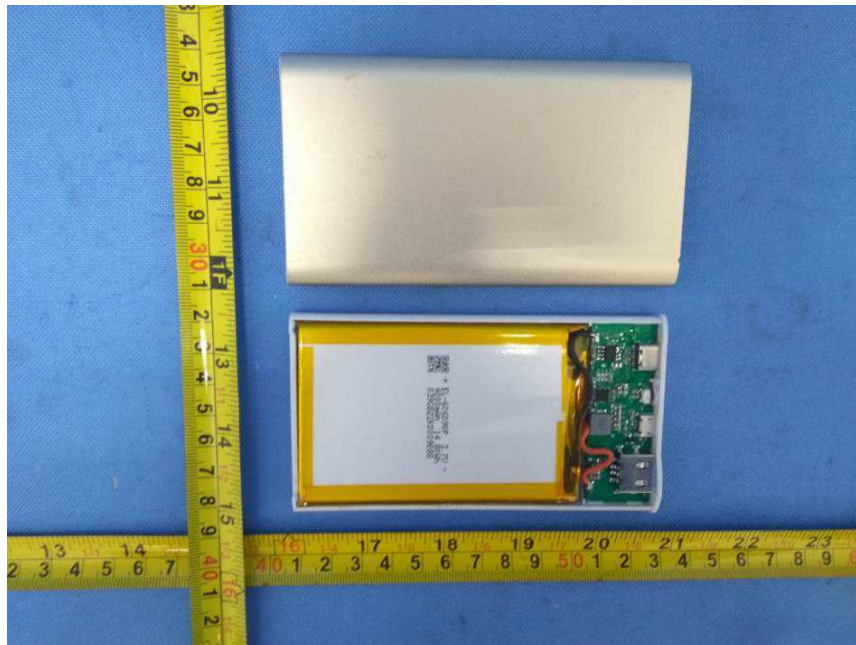
Set-up for radiated electromagnetic disturbances

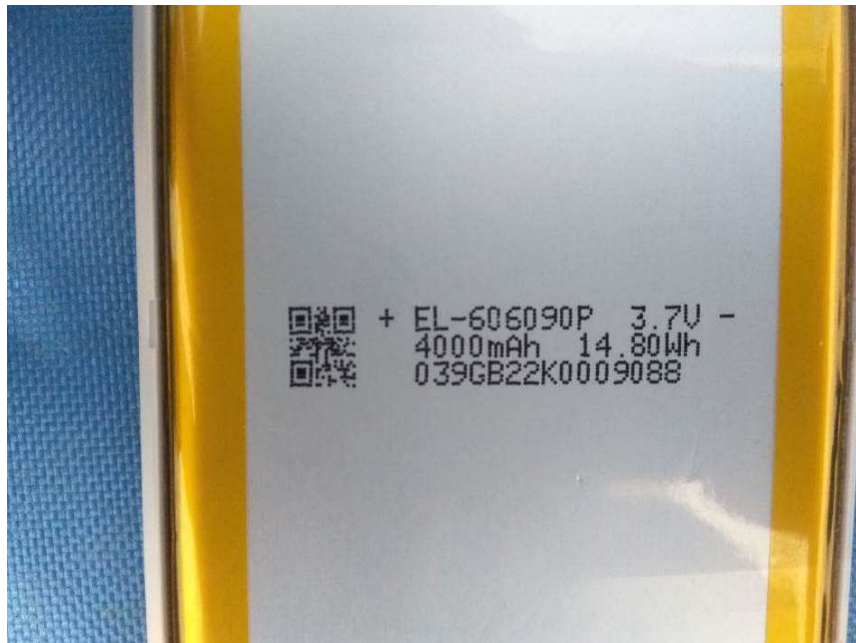
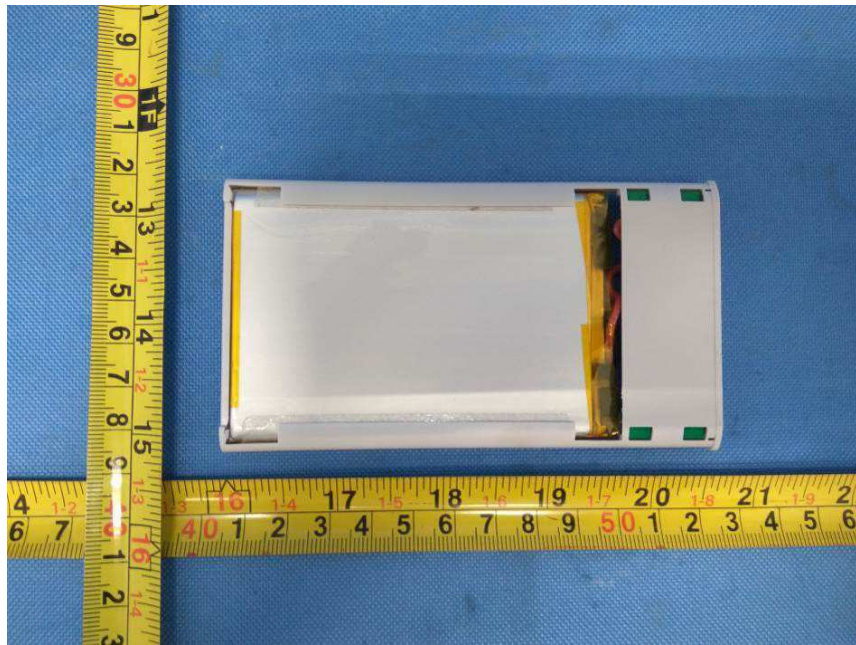


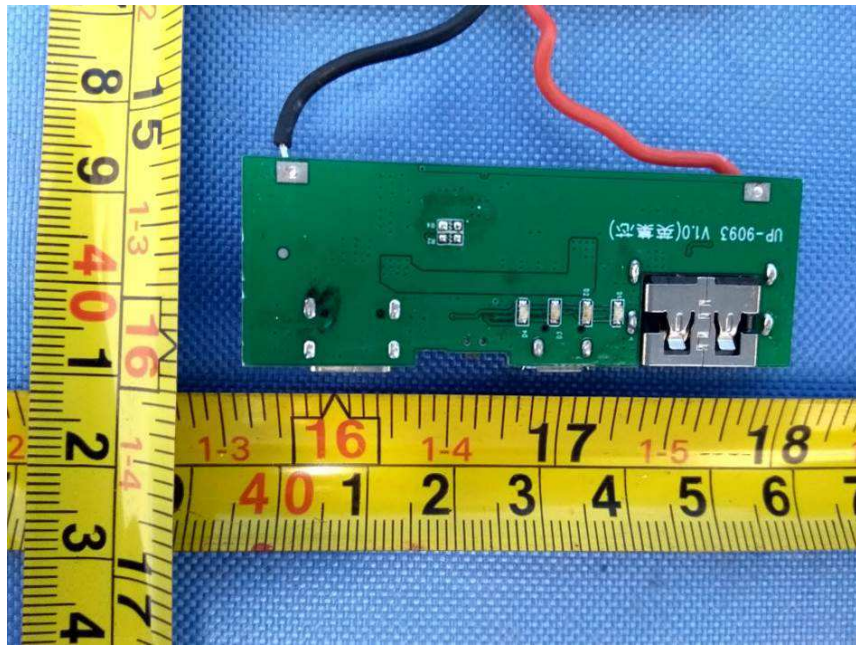
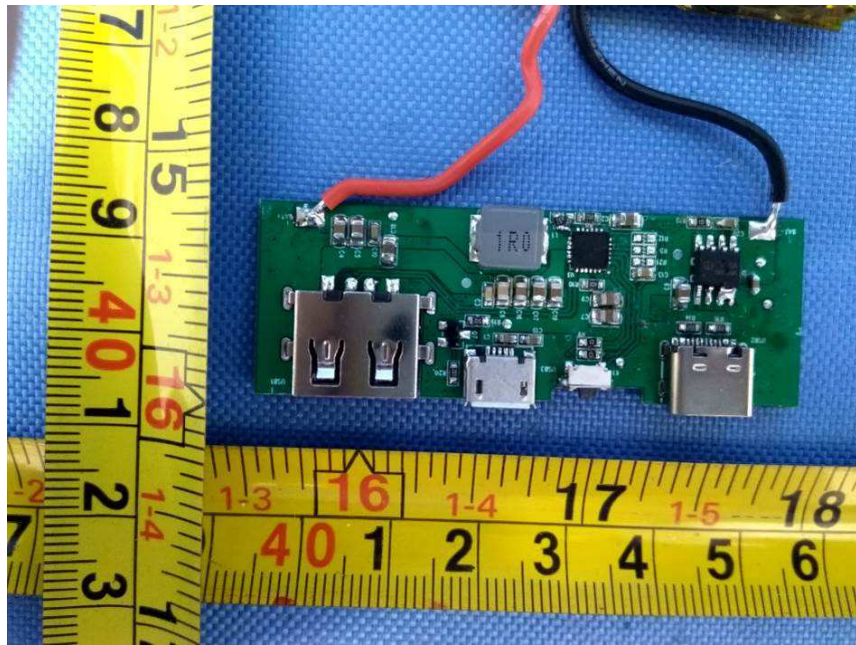
6. Photo of the EUT











*****End of report*****