FCC Part 15B Test Report

Application No.	:	TB171117375
Applicant	:	USC056
Equipment Under Test (EUT)		
EUT Name	:	Light up Power bank
Model No.	:	SP0363
Serial Model No.	:	CPP-4669
Brand Name	:	
Receipt Date	:	2017-11-20
Test Date	:	2017-11-20 to 2017-11-22
Issue Date	:	2017-11-22
Standards	:	FCC Part 15:2016 Subpart B
Conclusions	:	**PASS**

In the configuration tested, the EUT complied with the standards specified above

The EUT technically complies with the FCC requirements

Test/Witness Engineer : Rebeca

Approved & Authorized :

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Contents

Revision History

Report No.	Version	Description	Issued Date
TB-FCC157176	Rev.01	Initial issue of report	2017-11-20

1. General Information

1.1 Client Information

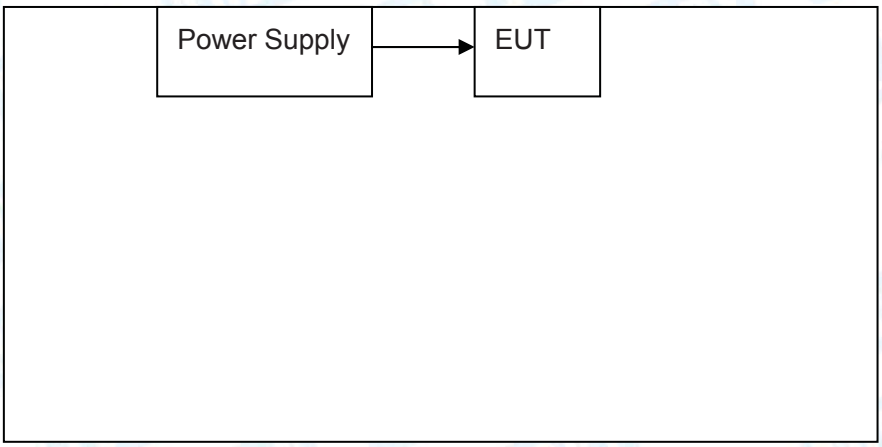
Applicant	:	USC056
Address	:	China
Manufacturer	:	USC056
Address	:	

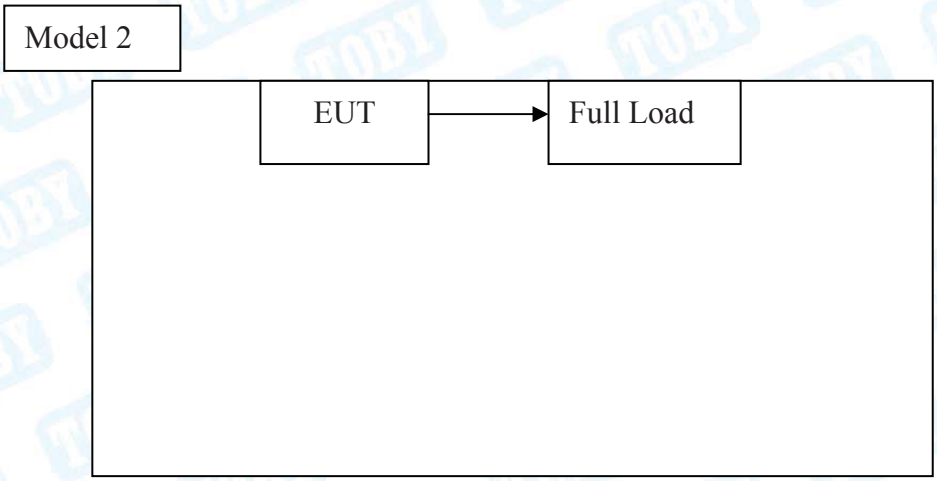
1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Light up Power bank
Model(s)	:	SP0363, CPP-4669
Model Difference	**:**	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name for commercial. therefore, FCC testing was performed with SP0363 only.
Brand Name	:	
Power Supply	:	Input: DC 5V 2000mA Output: DC 5V 2100mA Capacity: 3.7V 8000mAh(29.6Wh)
Equipment	**:**	☐ Class A ☒ Class B
Class A Equipment: the Equipment is not intended primarily for use in a residential environment. **Class B Equipment:** the Equipment is intended primarily for use in a residential environment.		

1.3 Block Diagram Showing The Configuration of System Tested

Model 1





1.4 Description of Support Units

Name	Model	S/N	Manufacturer	Used " √ "
Power Supply	02D050200	---	BSY	√

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	**Description**
Mode 1	N/A
For Radiated Test	
Final Test Mode	**Description**
Mode 1	Charging Mode
Mode 2	Discharging Mode

1.6 Test standards

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.107, 15.109 rules.
Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has

been maintained.

1.7 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)
The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)
The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)
The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

1.8 Measurement Uncertainty

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %.

Test	Parameters	Expanded Uncertainty (U_{Lab})	Expanded Uncertainty (U_{Cispr})
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB	±5.2 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB	N/A

2. Test Summary

Test Items	Test Requirement	Test Method	Result
Conducted Emission	FCC Part 15:2016 Subpart B	ANSI C63.4	N/A
Radiated Emission	FCC Part 15:2016 Subpart B	ANSI C63.4	Pass
Note: N/A is an abbreviation for Not Applicable.			

3. Test Equipment Used

Radiation Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal.Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 20, 2017	Jul. 19, 2018
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Jul. 20, 2017	Jul. 19, 2018
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.25, 2017	Mar. 24, 2018
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar.25, 2017	Mar. 24, 2018
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.24, 2017	Mar. 23, 2018
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.24, 2017	Mar. 23, 2018
Pre-amplifier	HP	11909A	185903	Mar.24, 2017	Mar. 23, 2018
Pre-amplifier	HP	8449B	3008A00849	Mar.25, 2017	Mar. 24, 2018
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 24, 2017	Mar. 23, 2018
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Mar. 24, 2017	Mar. 23, 2018
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard

FCC Part 15 B: 2016

4.1.2. Test Limit

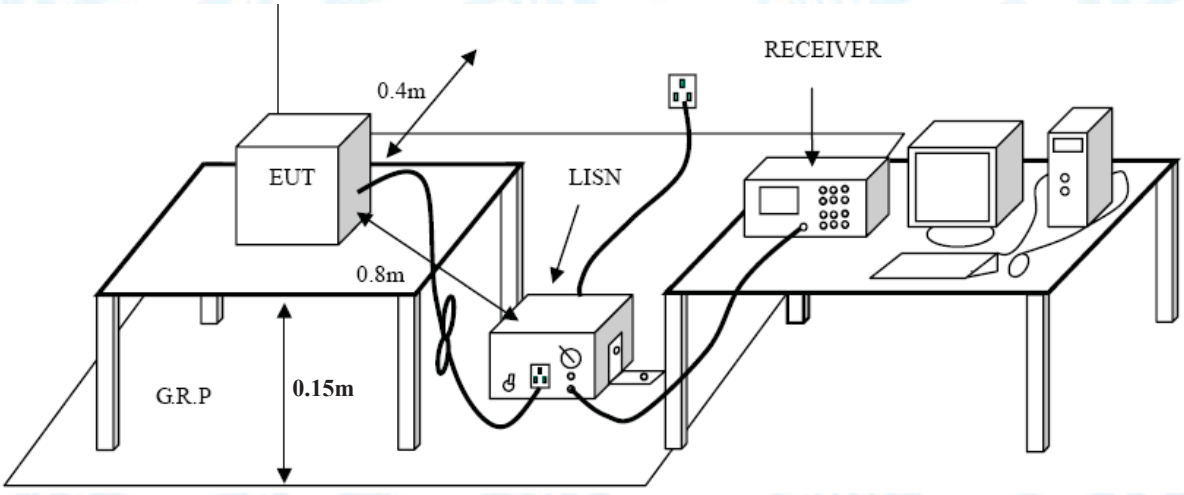
Conducted Emission Test Limit (Class A)

Frequency (MHz)	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
0.15~0.50	79	66
0.50~30	73	60

Conducted Emission Test Limit (Class B)

Frequency (MHz)	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
0.15~0.5	66 ~ 56 *	56 ~ 46 *
0.50~5	56	46
5~30	60	50
*decreasing linearly with logarithm of the frequency		

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.15 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

The cables shall be insulated (by up to 15 cm) from the horizontal ground reference plane, and shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 Test Data

This test is not applicable.

5. Radiated Emission Test

5.1 Test Standard and Limit

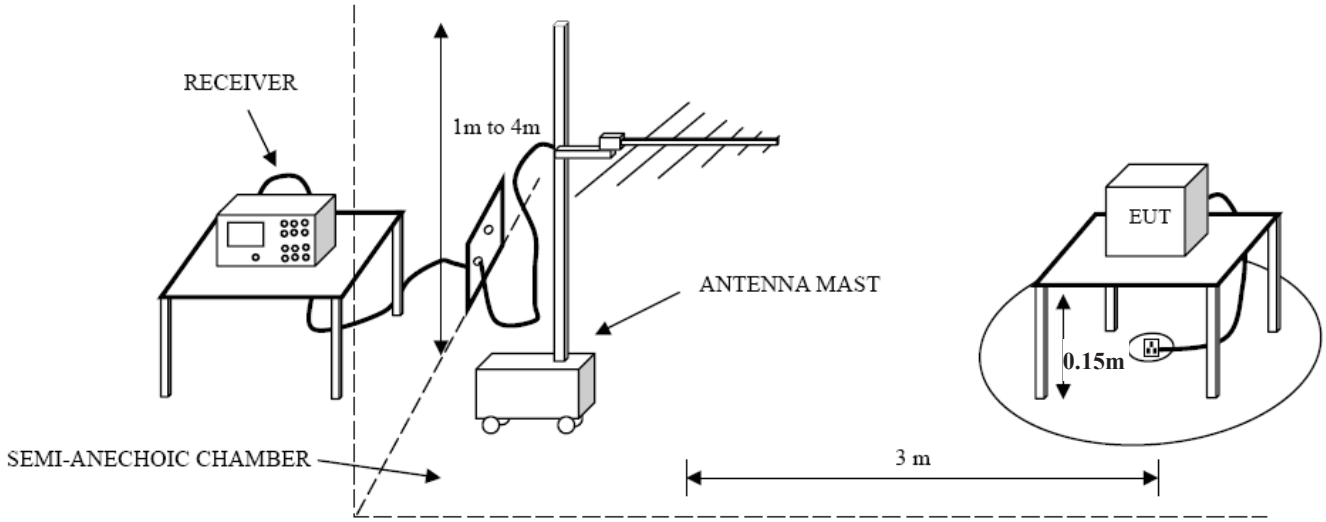
5.1.1 Test Standard

FCC Part 15 B: 2016

5.1.2 Test Limit

Radiated Emission Test Limit (Class A)	
Frequency MHz	**Field Strengths Limits dB(μV/m)**
30 ~ 88	49.0
88 ~ 216	53.5
216 ~ 960	56.4
960 ~ 1000	59.5
Radiated Emission Test Limit (Class B)	
Frequency MHz	**Field Strengths Limits dB(μV/m)**
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
960 ~ 1000	54.0
* The lower limit shall apply at the transition frequency.	
* The test distance is 3m.	

5.2 Test Setup



5.3 Test Procedure

The EUT was placed on the top of a rotating table which is 0.15 meters above the ground. EUT is set 3.0 meters away from the receiving antenna that mounted on a antenna tower. The table was rotated 360 degrees to determine the position of the highest radiation, the antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

Measurements shall be made with a quasi-peak measuring receiver in the frequency range 30MHz to 1000MHz. If the Peak Mode measured value compliance with and lower than quasi-peak mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

5.4 Test Data

Please refer to the Attachment A.

6. Photographs - Constructional Details

Photo 1 Appearance of EUT

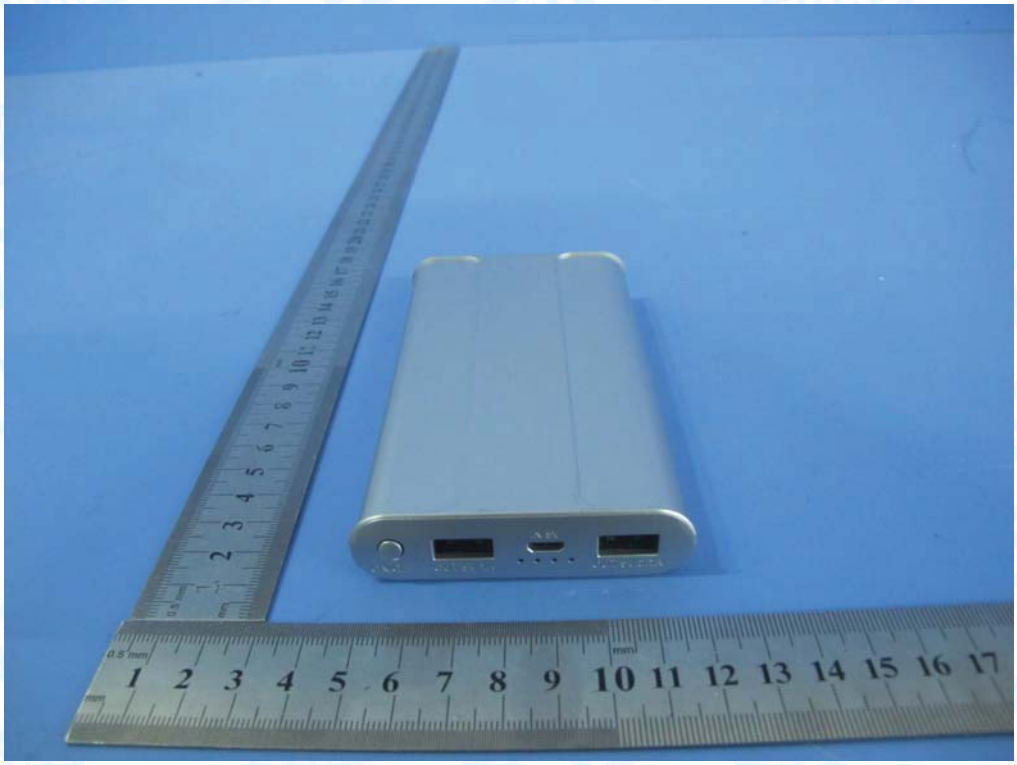


Photo 2 Appearance of EUT

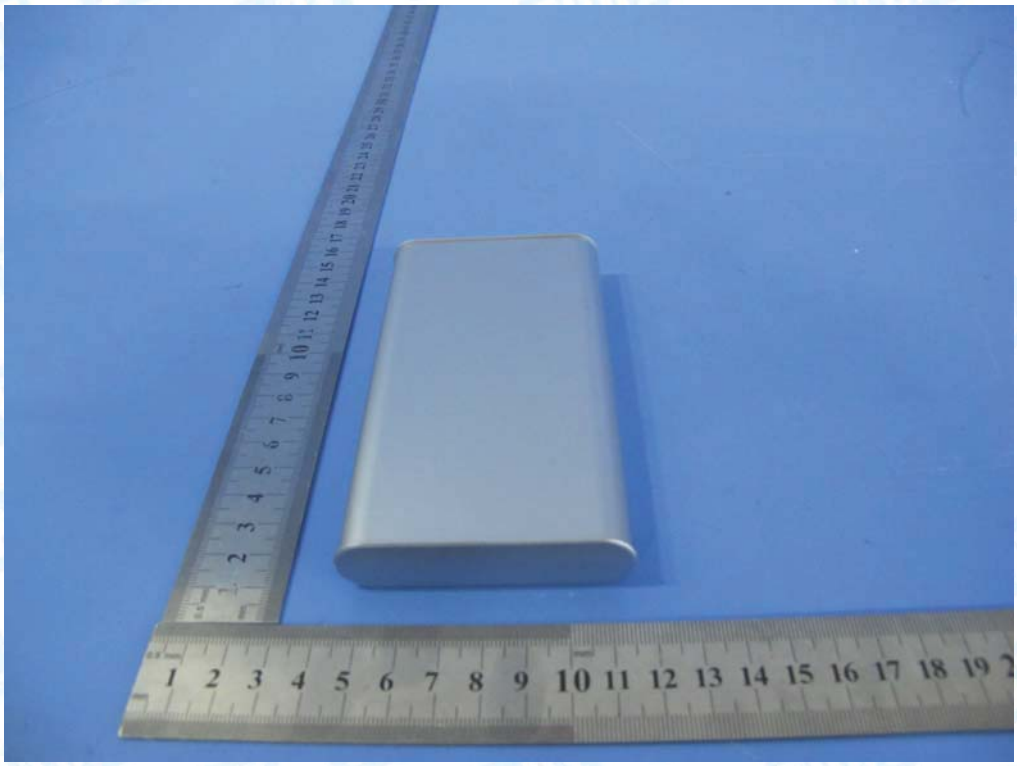


Photo 3 Internal of EUT

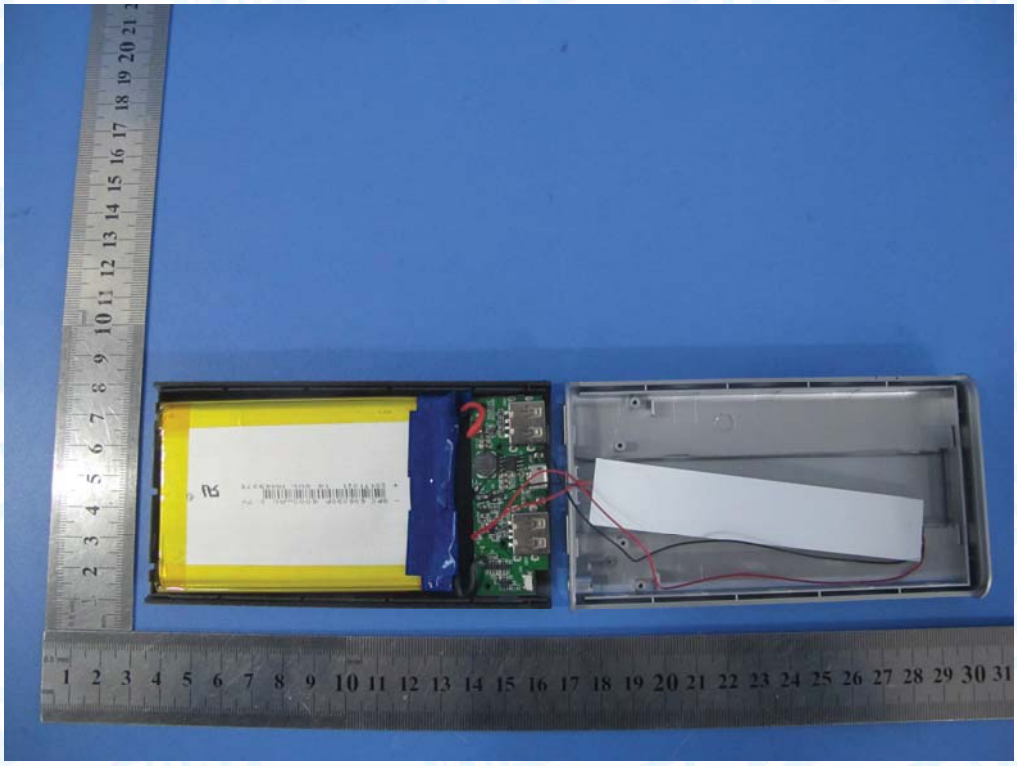


Photo 4 Appearance of PCB

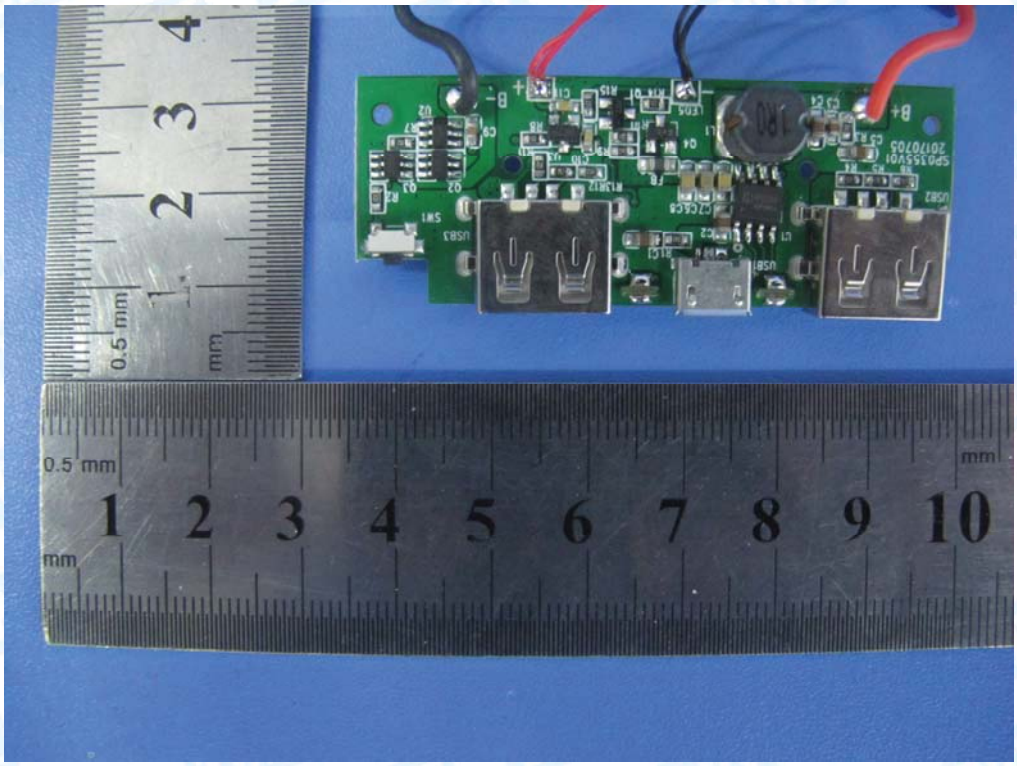
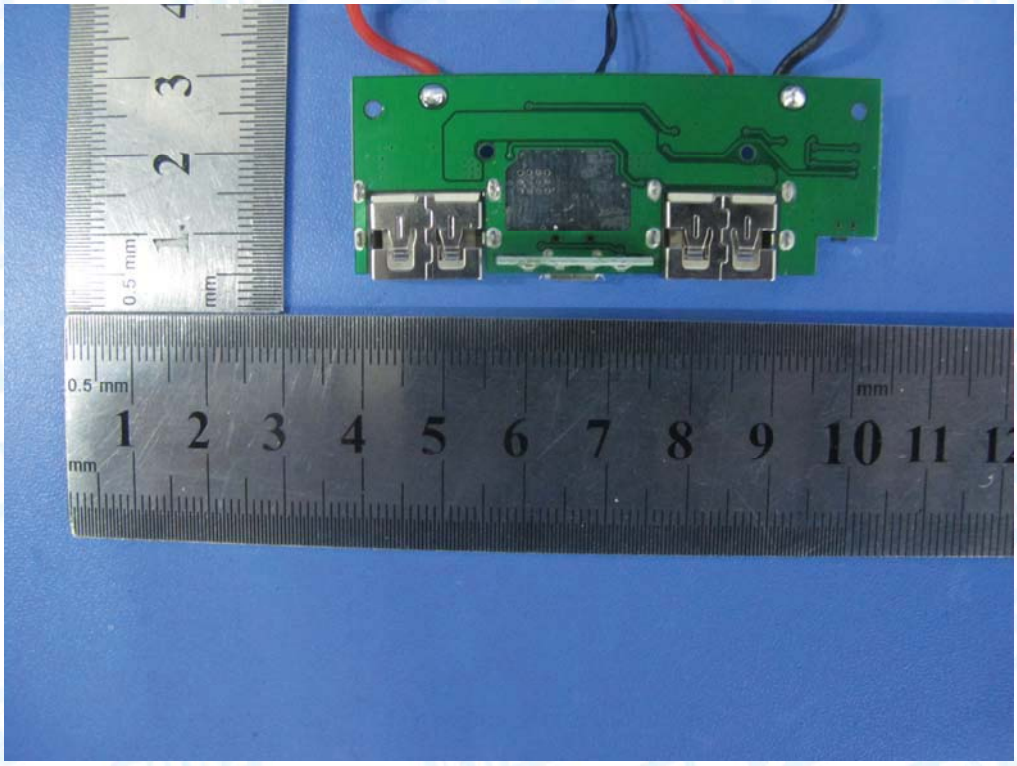


Photo 5 Appearance of PCB



7. Photographs - Test Setup

Photo 1 Radiated Emission Test Setup

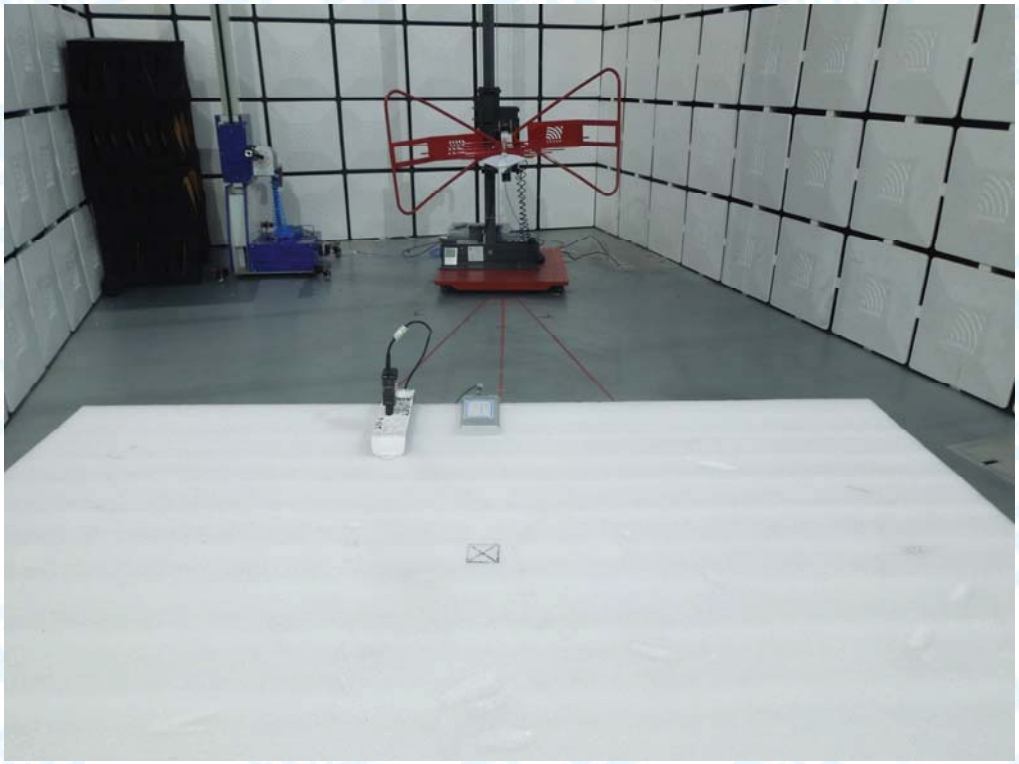
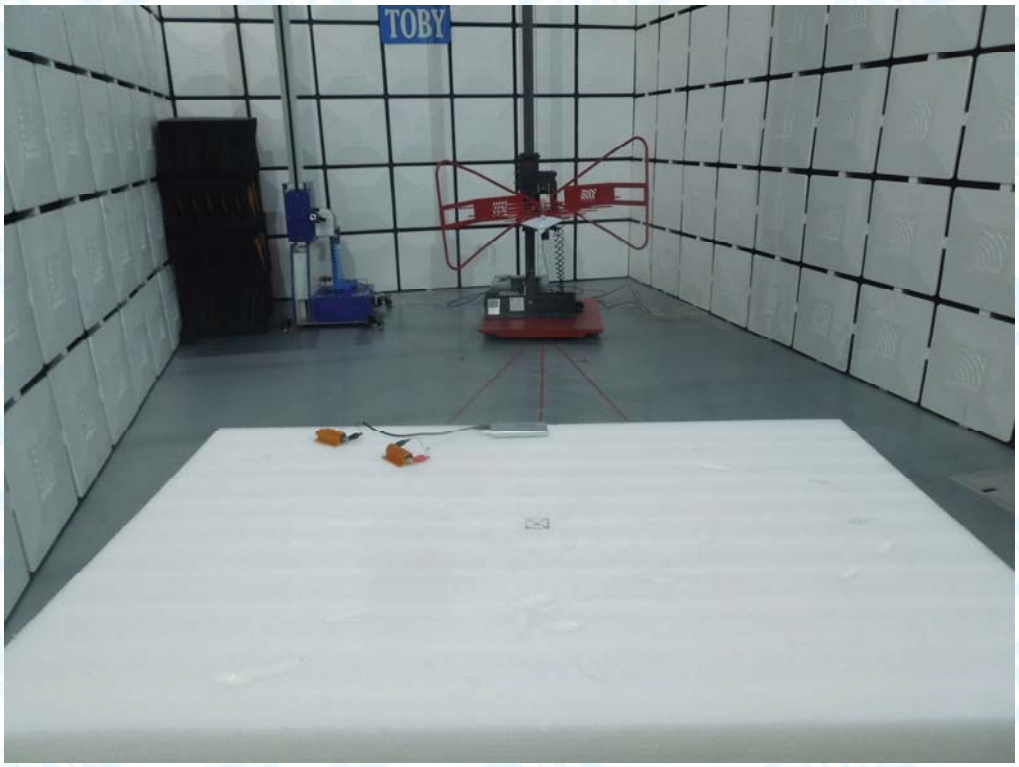


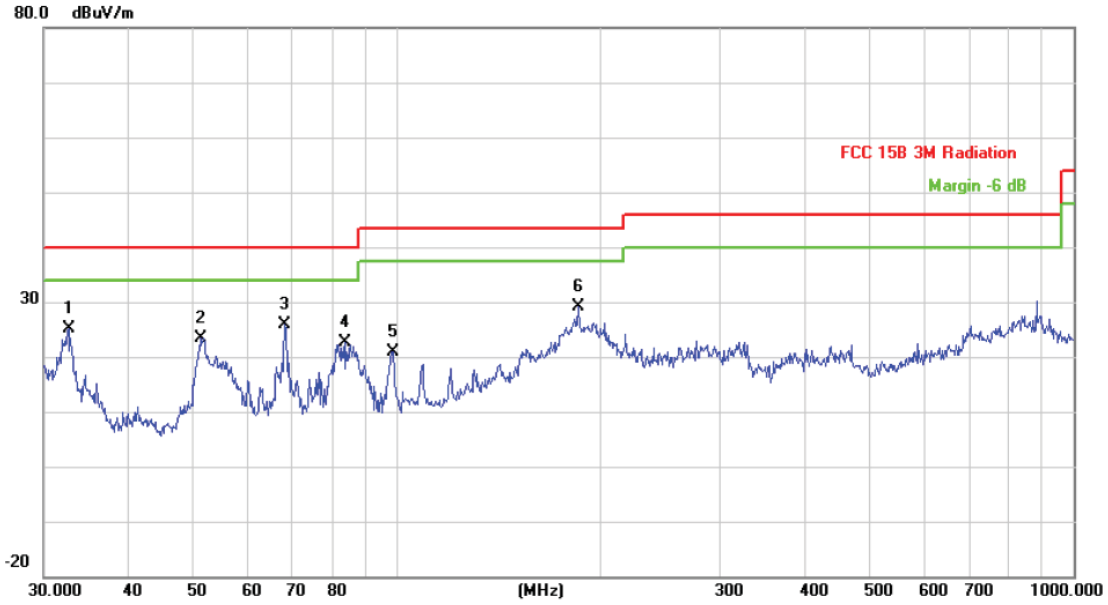
Photo 2 Radiated Emission Test Setup



Attachment B--Radiated Emission Test Data

----Below 1G

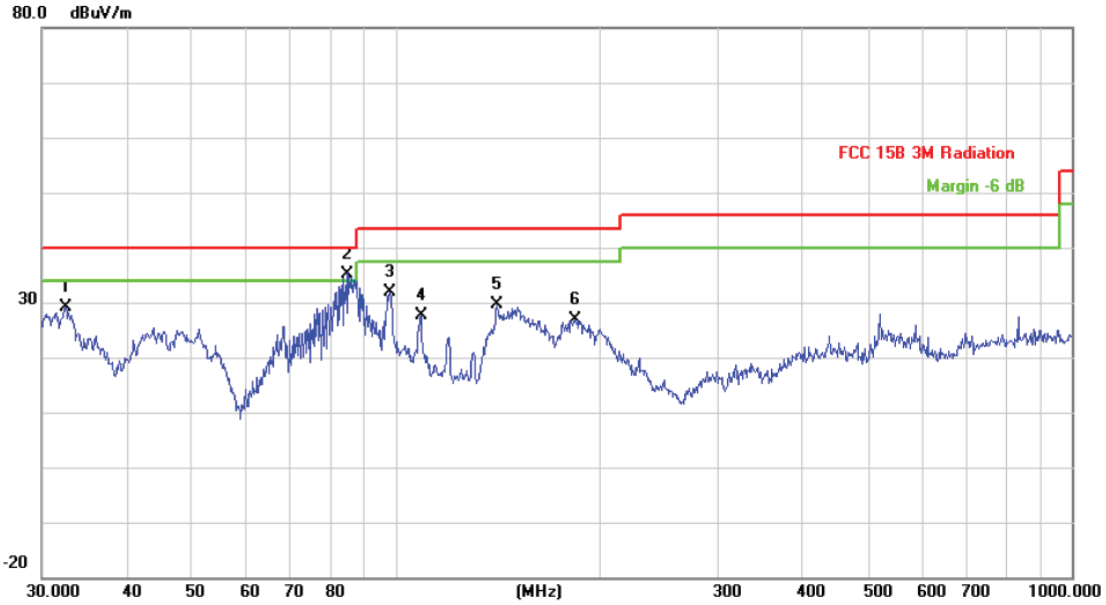
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 5V		
Ant. Pol.	Horizontal		
Test Mode:	Mode 1		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		32.6340	40.16	-15.09	25.07	40.00	-14.93	peak
2		51.3005	47.24	-23.81	23.43	40.00	-16.57	peak
3	*	68.1514	49.01	-23.22	25.79	40.00	-14.21	peak
4		83.8156	45.21	-22.51	22.70	40.00	-17.30	peak
5		98.4866	42.32	-21.38	20.94	43.50	-22.56	peak
6		185.1379	49.07	-19.89	29.18	43.50	-14.32	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 5V		
Ant. Pol.	Vertical		
Test Mode:	Mode 1		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		32.5197	44.15	-15.01	29.14	40.00	-10.86	peak
2	*	84.7018	57.72	-22.47	35.25	40.00	-4.75	peak
3		98.1419	53.17	-21.40	31.77	43.50	-11.73	peak
4		109.0285	48.82	-21.27	27.55	43.50	-15.95	peak
5		141.3298	50.85	-21.24	29.61	43.50	-13.89	peak
6		184.4898	46.83	-19.88	26.95	43.50	-16.55	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 5V		
Ant. Pol.	Horizontal		
Test Mode:	Mode 2		
Remark:			

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	84.9993	57.38	-22.44	34.94	40.00	-5.06	peak
2		95.7622	55.79	-21.62	34.17	43.50	-9.33	peak
3		138.8735	45.09	-21.37	23.72	43.50	-19.78	peak
4		178.1326	48.26	-19.87	28.39	43.50	-15.11	peak
5		233.3487	45.38	-17.90	27.48	46.00	-18.52	peak
6		322.1886	42.80	-15.13	27.67	46.00	-18.33	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 5V		
Ant. Pol.	Vertical		
Test Mode:	Mode 2		
Remark:			

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		32.5198	42.13	-15.01	27.12	40.00	-12.88	peak
2		51.3005	43.70	-23.81	19.89	40.00	-20.11	peak
3		68.1514	48.05	-23.22	24.83	40.00	-15.17	peak
4	*	84.1100	52.85	-22.49	30.36	40.00	-9.64	peak
5		97.7983	51.26	-21.44	29.82	43.50	-13.68	peak
6		156.4578	42.01	-20.05	21.96	43.50	-21.54	peak

Emission Level= Read Level+ Correct Factor

-----END OF REPORT-----