

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Dongguan Fuqiang Electronics Co. Ltd

OtterSpot Wireless Charging Battery

Model Number: OBFTC-0025-A

Additional Model: OBFTC-0022-A

FCC ID: 2ATKP-OBFTC-0022-A

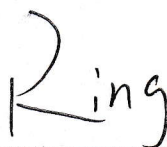
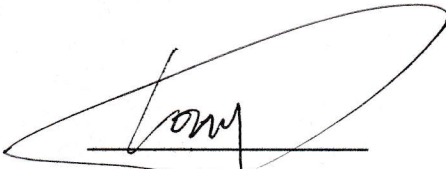
Prepared for:	Dongguan Fuqiang Electronics Co. Ltd
	Cheng Uei Industry District, Dong-Keng, Dongguan, Guangdong, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R1906066
Date of Test:	May. 17 ~ 30, 2019
Date of Report:	Jun.04, 2019

TABLE OF CONTENTS

Description	Page
TEST REPORT VERIFICATION.....	3
1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT)	4
2. SUMMARY OF TEST	5
2.1. Summary of test result.....	5
2.2. Test Facilities	6
2.3. Measurement uncertainty	7
2.4. Assistant equipment used for test.....	7
2.5. Block Diagram	7
2.6. Test mode	8
2.7. Test Equipment.....	9
3 POWER LINE CONDUCTED EMISSION TEST	11
3.1 Limit	11
3.2 Test Procedure	11
3.3. Test Result.....	11
3.4. Test data	12
4 RADIATED EMISSION TEST	16
4.1 Limit.....	16
4.2. Block Diagram of Test setup.....	17
4.3. Test Procedure	18
4.4. Test Result.....	18
4.5. Test Data	19
5 TEST SETUP PHOTO	31
6 PHOTO EUT.....	34

EST Technology Co., Ltd.

Applicant:	Dongguan Fuqiang Electronics Co. Ltd		
Address:	Cheng Uei Industry District, Dong-Keng, Dongguan, Guangdong, China		
Manufacturer:	Dongguan Fuqiang Electronics Co. Ltd		
Address:	Cheng Uei Industry District, Dong-Keng, Dongguan, Guangdong, China		
E.U.T:	OtterSpot Wireless Charging Battery		
Model Number:	OBFTC-0025-A		
Additional Model:	OBFTC-0022-A Note: They are identical except with or without Type-C port only.		
Power Supply:	DC 5V From Adapter Input AC 100-240V~ 50/60Hz DC 3.8V From Battery		
Test Voltage:	DC 5V From Adapter Input AC 120V/60Hz DC 5V From Adapter Input AC 240V/60Hz DC 3.8V		
Trade Name:	OTTERBOX	Serial No.:	-----
Date of Receipt:	May. 16, 2019	Date of Test:	May. 17 ~ 30, 2019
Test Specification:	FCC Rules and Regulations Part 15 Subpart C:2018 ANSI C63.10:2013		
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.		
		Date: Jun.04, 2019	
Prepared by:	Reviewed by:	Approved by:	
			
Ring / Assistant	Tony / Engineer	Iceman Hu / Manager	
Other Aspects:			
None.			
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	:	OtterSpot Wireless Charging Battery
FCC ID	:	2ATKP-OBFTC-0022-A
Model Number	:	OBFTC-0025-A
Operation frequency	:	110.5-148kHz
Antenna	:	Coil, 0dBi.
Modulation	:	MSK
Max output power	:	10W
Sample Type	:	Prototype production

2. SUMMARY OF TEST

2.1. Summary of test result

Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10:2013	PASS
Radiated Emission	FCC Part 15: 15.209 ANSI C63.10:2013	PASS

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA
 Registration No.: L5288
 Date of registration: November 13, 2017

Certificated by FCC, USA
 Designation Number: CN1215
 Test Firm Registration Number: 722932
 Date of registration: November 21, 2017

Certificated by A2LA, USA
 Registration No.: 4366.01
 Date of registration: November 07, 2017

Certificated by Industry Canada
 CAB identifier No.: CN0035
 Date of registration: January 04, 2019

Certificated by VCCI, Japan
 Registration No.: R-13663; C-14103
 Date of registration: July 25, 2017
 This Certificate is valid until: July 24, 2020

Certificated by TUV Rheinland, Germany
 Registration No.: UA 50413872 0001
 Date of registration: July 31, 2018

Certificated by TUV/PS, Shenzhen
 Registration No.: SCN1017
 Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO
 Registration No.: 2011-RTL-L2-64
 Date of registration: April 28, 2011

Certificated by Nemko, Hong Kong
 Registration No.: 175193
 Date of registration: May 4, 2011

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	$\pm 3.48\text{dB}$
Uncertainty for spurious emissions test (30MHz-1GHz)	$\pm 4.60\text{ dB(Polarize: H)}$
	$\pm 4.68\text{ dB(Polarize: V)}$
Uncertainty for spurious emissions test (1GHz to 18GHz)	$\pm 4.96\text{dB}$
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

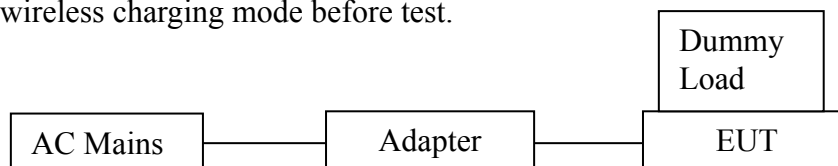
2.4. Assistant equipment used for test

2.4.1. Adapter

M/N	:	OBFTC-0023-A
Input	:	AC 100-240V~50/60Hz 0.15A
Output	:	DC 5V/3A, DC 9V/3A, DC 12V/5A
Manufacturer	:	Fuqiang

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was beset into wireless charging mode before test.



(EUT: OtterSpot Wireless Charging Battery)

2.6. Test mode

Mode	
TX + Wireless Charging	Full Load
	Half Load
	Empty Load
Remark: The “Full Load” is worst case, will be recorded in the report.	

2.7. Test Equipment

2.7.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	CEPREI	June 15,18	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	101260	CEPREI	June 15,18	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.7.2. For radiated emission test(9 kHz-30MHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	101780	CEPREI	June 15,18	1 Year
Active Loop Antenna	SCHWARZB ECK	FMZB 1519B	1519B-088	CEPREI	Aug. 01,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.7.3. For radiated emissions test (30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	101780	CEPREI	June 15,18	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.7.4. For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	BBHA912 0D1002	CEPREI	June 18,18	1 Year
Horn Antenna	SCHWARZB ECK	BBHA9170	BBHA917 0242	CEPREI	June 18,18	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	9718-212	CEPREI	June 15,18	1 Year
Spectrum Analyzer	Rohde & Schwarz	FSV	103173	CEPREI	June 15,18	1 Year
PSA Series Spectrum Analyzer	Agilent	E4447A	MY50180 031	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.7.5. For connect EUT antenna terminal test

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	FSV	103173	CEPREI	June 15,18	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211 139	CEPREI	June 15,18	1 Year

3 POWER LINE CONDUCTED EMISSION TEST

3.1 Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.2 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

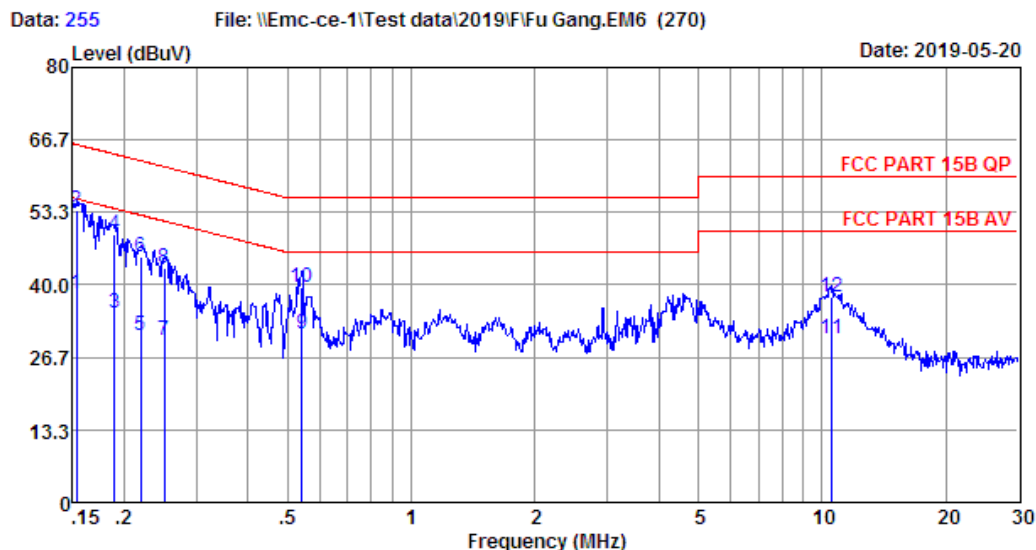
3.3. Test Result

PASS. (All emissions not reported below are too low against the prescribed limits.)

3.4. Test data

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no : 844 Shield Room Data no. : 255
 Env. / Ins. : Temp:24.2'C Humi:53% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 240V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.50	9.69	19.20	38.39	55.82	17.43	Average
2	0.15	9.50	9.69	34.42	53.61	65.82	12.21	QP
3	0.19	9.53	9.77	15.43	34.73	54.06	19.33	Average
4	0.19	9.53	9.77	29.89	49.19	64.06	14.87	QP
5	0.22	9.53	9.84	11.42	30.79	52.83	22.04	Average
6	0.22	9.53	9.84	25.88	45.25	62.83	17.58	QP
7	0.25	9.53	9.92	10.41	29.86	51.73	21.87	Average
8	0.25	9.53	9.92	23.70	43.15	61.73	18.58	QP
9	0.54	9.55	9.92	11.52	30.99	46.00	15.01	Average
10	0.54	9.55	9.92	20.12	39.59	56.00	16.41	QP
11	10.51	9.69	10.07	10.37	30.13	50.00	19.87	Average
12	10.51	9.69	10.07	18.06	37.82	60.00	22.18	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

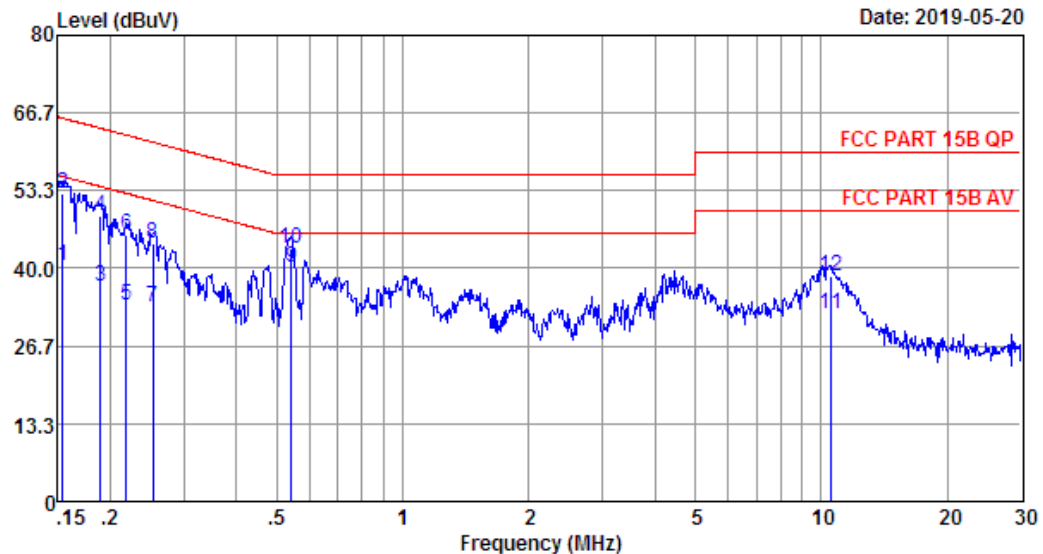
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 257

File: \\Emc-ce-1\Test data\2019\Fu Gang.EM6 (270)

Date: 2019-05-20



Site no : 844 Shield Room Data no. : 257
 Env. / Ins. : Temp:24.2'C Humi:53% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 240V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.15	9.59	9.69	21.20	40.48	55.78	15.30	Average
2	0.15	9.59	9.69	33.55	52.83	65.78	12.95	QP
3	0.19	9.60	9.77	17.43	36.80	54.06	17.26	Average
4	0.19	9.60	9.77	29.58	48.95	64.06	15.11	QP
5	0.22	9.61	9.84	14.17	33.62	52.88	19.26	Average
6	0.22	9.61	9.84	26.32	45.77	62.88	17.11	QP
7	0.25	9.61	9.92	13.90	33.43	51.64	18.21	Average
8	0.25	9.61	9.92	24.64	44.17	61.64	17.47	QP
9	0.54	9.63	9.92	20.58	40.13	46.00	5.87	Average
10	0.54	9.63	9.92	23.86	43.41	56.00	12.59	QP
11	10.51	9.78	10.07	12.27	32.12	50.00	17.88	Average
12	10.51	9.78	10.07	18.71	38.56	60.00	21.44	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

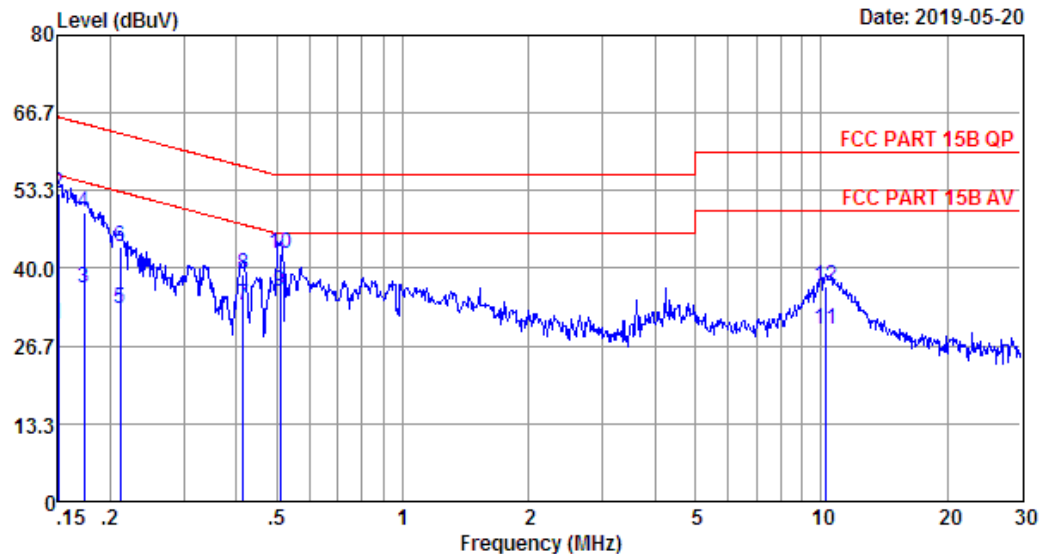
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 259

File: \\Emc-ce-1\Test data\2019\Fu Gang.EM6 (270)

Date: 2019-05-20



Site no : 844 Shield Room Data no. : 259
 Env. / Ins. : Temp:24.2'C Humi:53% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.59	9.69	11.20	30.48	56.00	25.52	Average
2	0.15	9.59	9.69	33.61	52.89	66.00	13.11	QP
3	0.17	9.59	9.69	17.20	36.48	54.81	18.33	Average
4	0.17	9.59	9.69	30.17	49.45	64.81	15.36	QP
5	0.21	9.61	9.84	13.67	33.12	53.14	20.02	Average
6	0.21	9.61	9.84	24.20	43.65	63.14	19.49	QP
7	0.41	9.63	9.92	14.17	33.72	47.55	13.83	Average
8	0.41	9.63	9.92	19.51	39.06	57.55	18.49	QP
9	0.51	9.63	9.92	16.33	35.88	46.00	10.12	Average
10	0.51	9.63	9.92	22.94	42.49	56.00	13.51	QP
11	10.23	9.77	10.07	9.58	29.42	50.00	20.58	Average
12	10.23	9.77	10.07	17.16	37.00	60.00	23.00	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

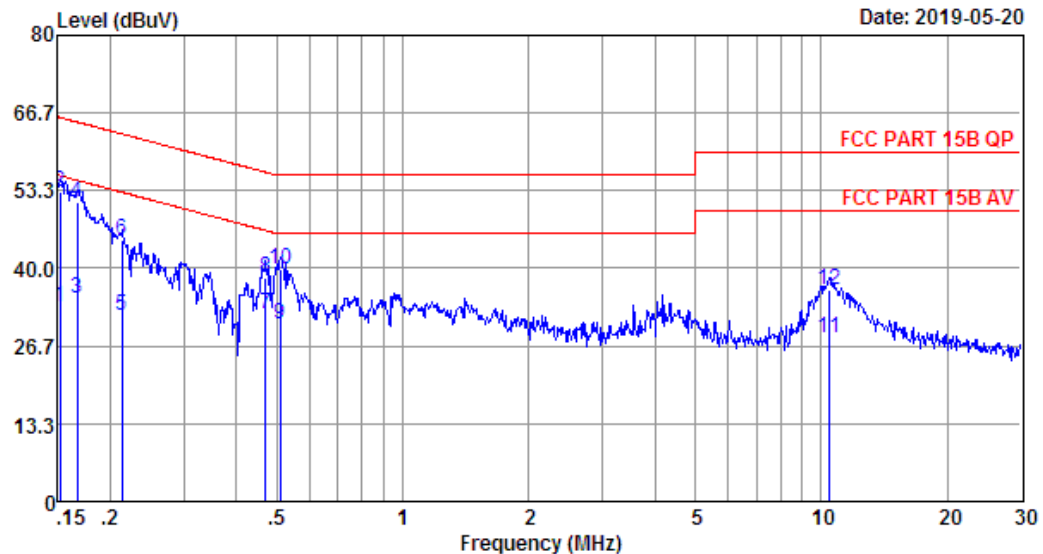
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 261

File: \\Emc-ce-1\Test data\2019\Fu Gang.EM6 (270)

Date: 2019-05-20



Site no : 844 Shield Room Data no. : 261
 Env. / Ins. : Temp:24.2'C Humi:53% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.50	9.69	14.20	33.39	55.91	22.52	Average
2	0.15	9.50	9.69	34.06	53.25	65.91	12.66	QP
3	0.17	9.50	9.69	15.62	34.81	55.12	20.31	Average
4	0.17	9.50	9.69	32.26	51.45	65.12	13.67	QP
5	0.21	9.53	9.84	12.42	31.79	53.10	21.31	Average
6	0.21	9.53	9.84	25.38	44.75	63.10	18.35	QP
7	0.47	9.55	9.92	12.66	32.13	46.49	14.36	Average
8	0.47	9.55	9.92	18.85	38.32	56.49	18.17	QP
9	0.51	9.55	9.92	10.79	30.26	46.00	15.74	Average
10	0.51	9.55	9.92	20.46	39.93	56.00	16.07	QP
11	10.45	9.69	10.06	8.27	28.02	50.00	21.98	Average
12	10.45	9.69	10.06	16.51	36.26	60.00	23.74	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

4 RADIATED EMISSION TEST

4.1 Limit

4.1.1 15.209 limits

Frequency (MHz)	Field Strength($\mu\text{V/m}$)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

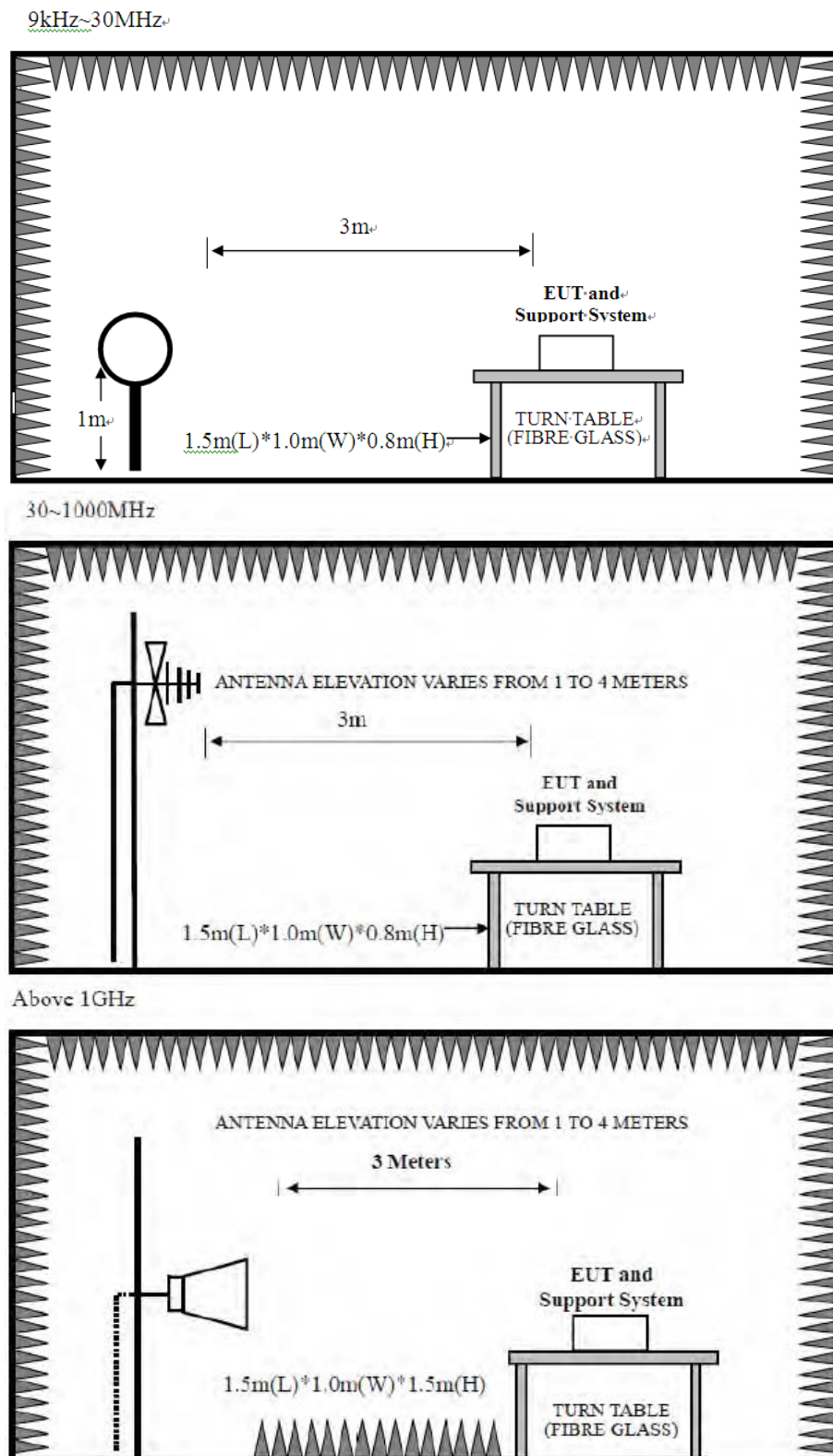
Remark : (1) Emission level $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.1.2 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.2. Block Diagram of Test setup



4.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground for 9kHz~1000MHz test, and which is 1.5 meter high above ground for above 1GHz test. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

The test frequency analyzer system was set to Peak Detect (200Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

PEAK detector, 1MHz/1MHz for PAEK measurement,

PEAK detector, 1MHz/10Hz for Average measurement

4.4. Test Result

PASS.

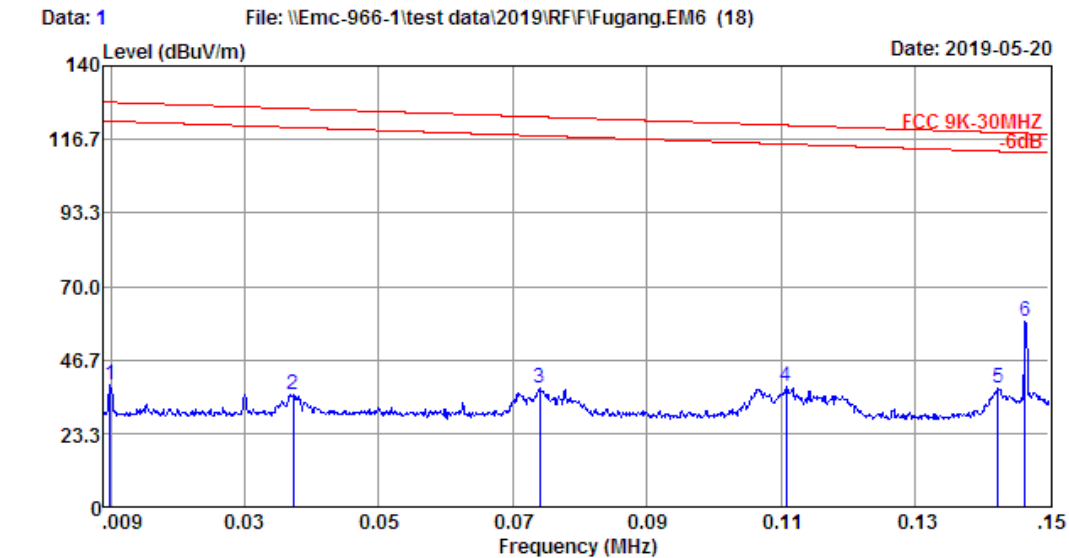
All the emissions from 9kHz to 1000 MHz were comply with 15.209 limits.

4.5. Test Data

9 kHz – 30 MHz

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 1
 Dis. / Ant. : 3m FMZB 1519B Ant. pol. : VERTICAL
 Limit : FCC 9K-30MHZ
 Env. / Ins. : Temp:24.9';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.01	20.65	0.10	17.84	38.59	128.45	89.86	Peak
2	0.04	20.42	0.10	15.19	35.71	126.48	90.77	Peak
3	0.07	20.29	0.10	17.29	37.68	123.83	86.15	Peak
4	0.11	20.24	0.10	18.02	38.36	121.17	82.81	Peak
5	0.14	20.25	0.10	17.49	37.84	118.89	81.05	Peak
6	0.15	20.26	0.10	38.60	58.96	118.60	59.64	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

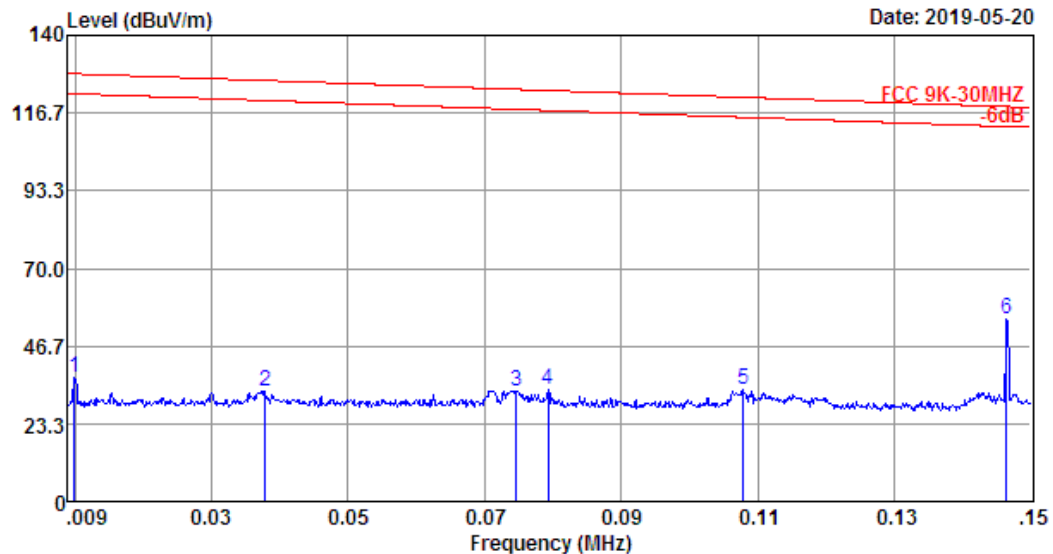
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 2

File: \\Emc-966-1\\test data\\2019\\RF\\F\\Fugang.EM6 (18)

Date: 2019-05-20



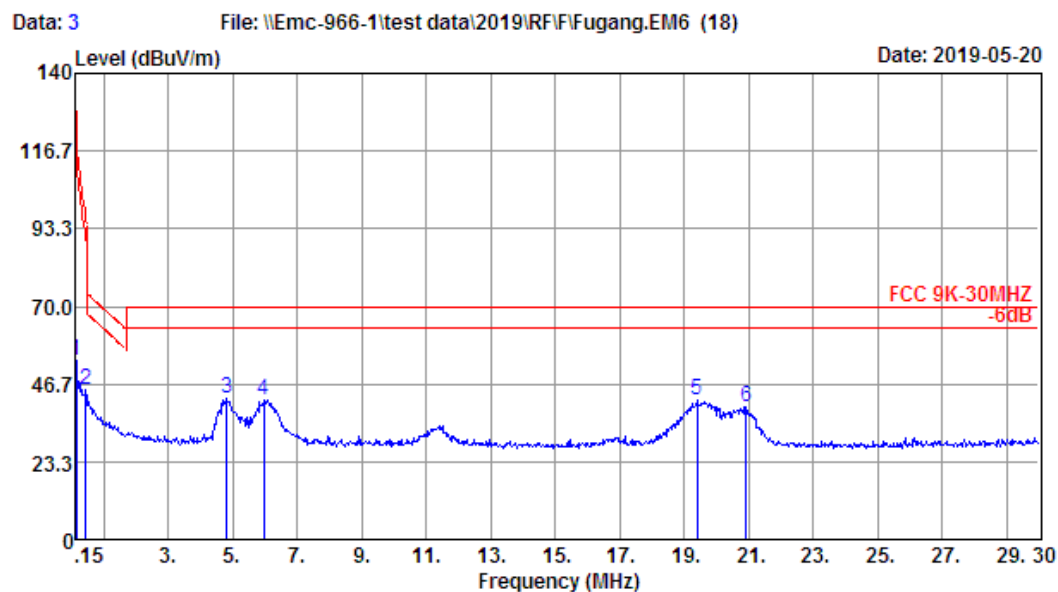
Site no. : 1# 966 Chamber Data no. : 2
Dis. / Ant. : 3m FMZB 1519B Ant. pol. : HORIZONTAL
Limit : FCC 9K-30MHz
Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
Engineer : Viking
EUT : OtterSpot Wireless Charging Battery
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : OBFTC-0025-A
Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.01	20.65	0.10	16.47	37.22	128.45	91.23	Peak
2	0.04	20.42	0.10	12.54	33.06	126.43	93.37	Peak
3	0.07	20.29	0.10	12.77	33.16	123.78	90.62	Peak
4	0.08	20.29	0.10	13.20	33.59	123.44	89.85	Peak
5	0.11	20.24	0.10	13.14	33.48	121.39	87.91	Peak
6	0.15	20.26	0.10	34.41	54.77	118.60	63.83	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



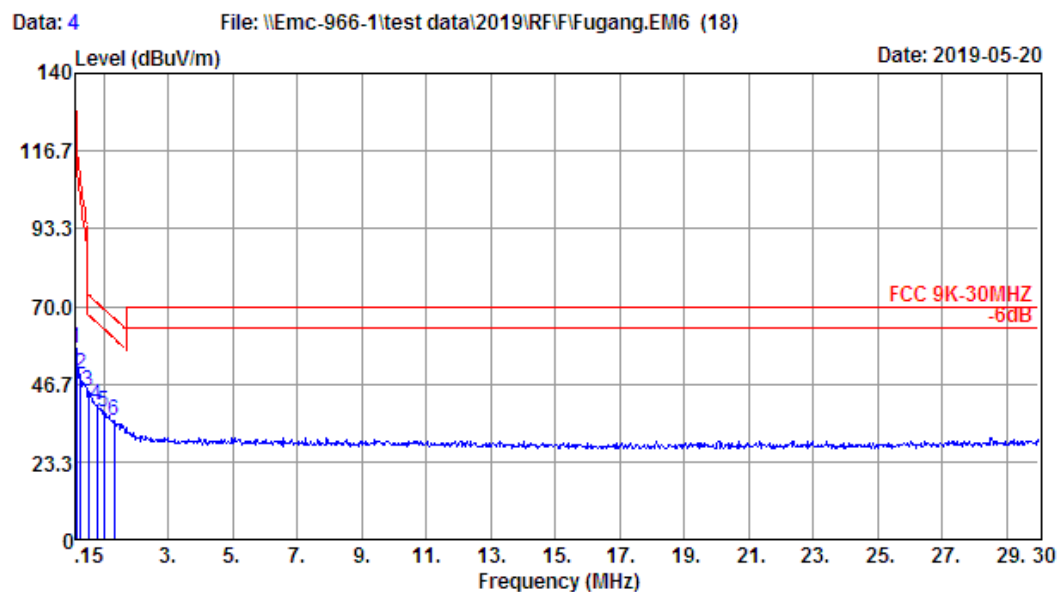
Site no. : 1# 966 Chamber Data no. : 3
Dis. / Ant. : 3m FMZB 1519B Ant. pol. : HORIZONTAL
Limit : FCC 9K-30MHZ
Env. / Ins. : Temp:24.9';Humi:52%;Press:101.52kPa
Engineer : Viking
EUT : OtterSpot Wireless Charging Battery
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : OBFTC-0025-A
Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.15	20.26	0.10	33.34	53.70	118.34	64.64	Peak
2	0.45	20.08	0.10	24.64	44.82	96.80	51.98	Peak
3	4.84	20.04	0.12	22.34	42.50	69.54	27.04	Peak
4	5.97	20.00	0.12	21.73	41.85	69.54	27.69	Peak
5	19.40	20.06	0.16	21.76	41.98	69.54	27.56	Peak
6	20.93	20.11	0.17	19.33	39.61	69.54	29.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 4
Dis. / Ant. : 3m FMZB 1519B Ant. pol. : VERTICAL
Limit : FCC 9K-30MHz
Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
Engineer : Viking
EUT : OtterSpot Wireless Charging Battery
Power : DC 5V From Adapter Input AC 120V/60Hz
M/N : OBFTC-0025-A
Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.15	20.26	0.10	37.19	57.55	118.34	60.79	Peak
2	0.30	20.07	0.10	29.60	49.77	107.57	57.80	Peak
3	0.54	20.07	0.10	24.08	44.25	73.37	29.12	Peak
4	0.81	20.03	0.10	20.33	40.46	70.98	30.52	Peak
5	1.02	20.01	0.10	18.06	38.17	69.11	30.94	Peak
6	1.34	20.03	0.10	15.43	35.56	66.19	30.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

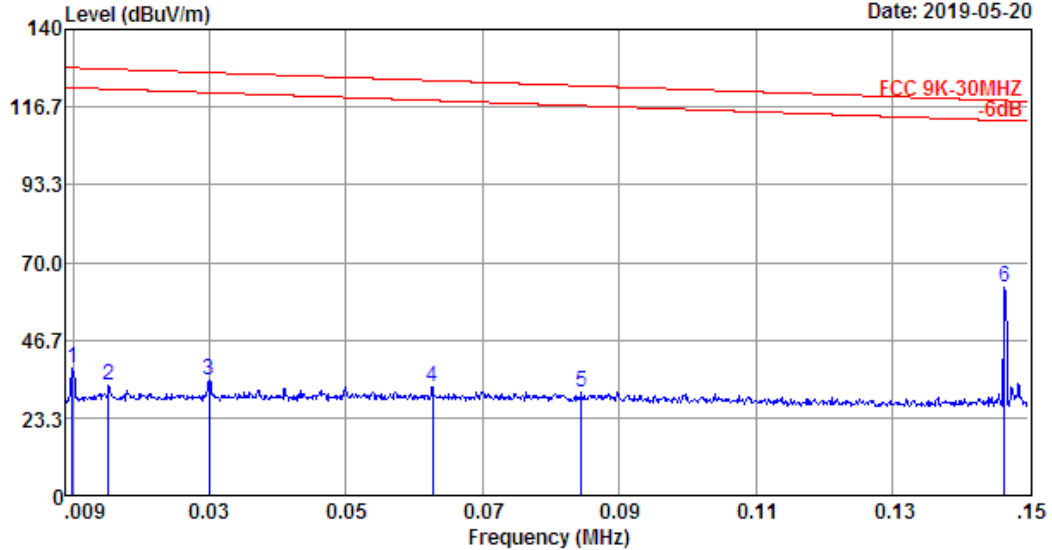
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 5

File: \\Emc-966-1\\test data\\2019\\RF\\F\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 5
 Dis. / Ant. : 3m FMZB 1519B Ant. pol. : VERTICAL
 Limit : FCC 9K-30MHz
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 3.8V
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.01	20.65	0.10	17.57	38.32	128.45	90.13	Peak
2	0.02	20.65	0.10	12.44	33.19	128.07	94.88	Peak
3	0.03	20.42	0.10	14.14	34.66	127.00	92.34	Peak
4	0.06	20.29	0.10	12.16	32.55	124.64	92.09	Peak
5	0.08	20.24	0.10	10.83	31.17	123.07	91.90	Peak
6	0.15	20.26	0.10	42.08	62.44	118.60	56.16	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

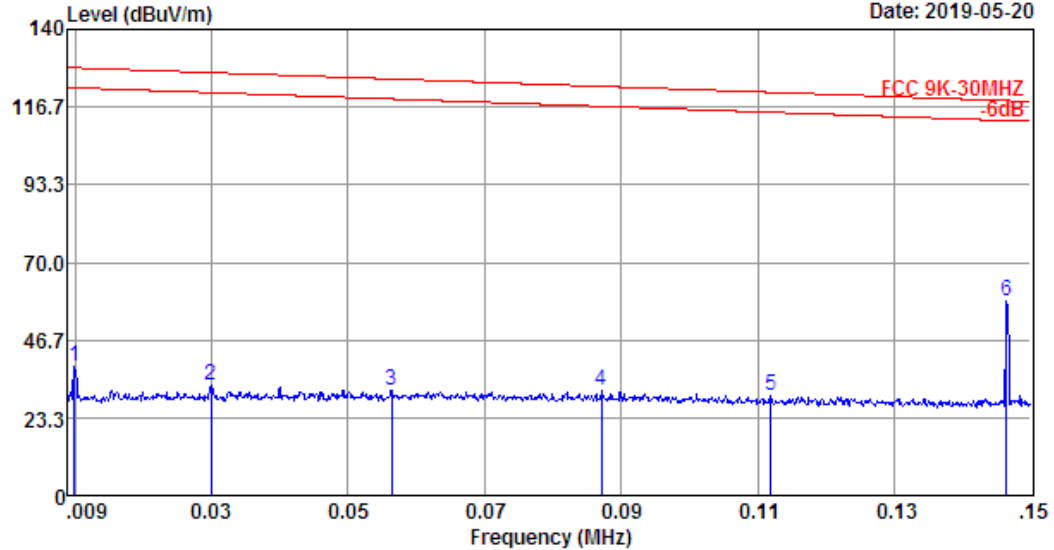
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 6

File: \\Emc-966-1\\test data\\2019\\RF\\F\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 6
Dis. / Ant. : 3m FMZB 1519B Ant. pol. : HORIZONTAL
Limit : FCC 9K-30MHz
Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
Engineer : Viking
EUT : OtterSpot Wireless Charging Battery
Power : DC 3.8V
M/N : OBFTC-0025-A
Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.01	20.65	0.10	17.97	38.72	128.45	89.73	Peak
2	0.03	20.42	0.10	12.51	33.03	127.00	93.97	Peak
3	0.06	20.29	0.10	11.37	31.76	125.10	93.34	Peak
4	0.09	20.24	0.10	11.20	31.54	122.88	91.34	Peak
5	0.11	20.24	0.10	9.83	30.17	121.09	90.92	Peak
6	0.15	20.26	0.10	37.77	58.13	118.60	60.47	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

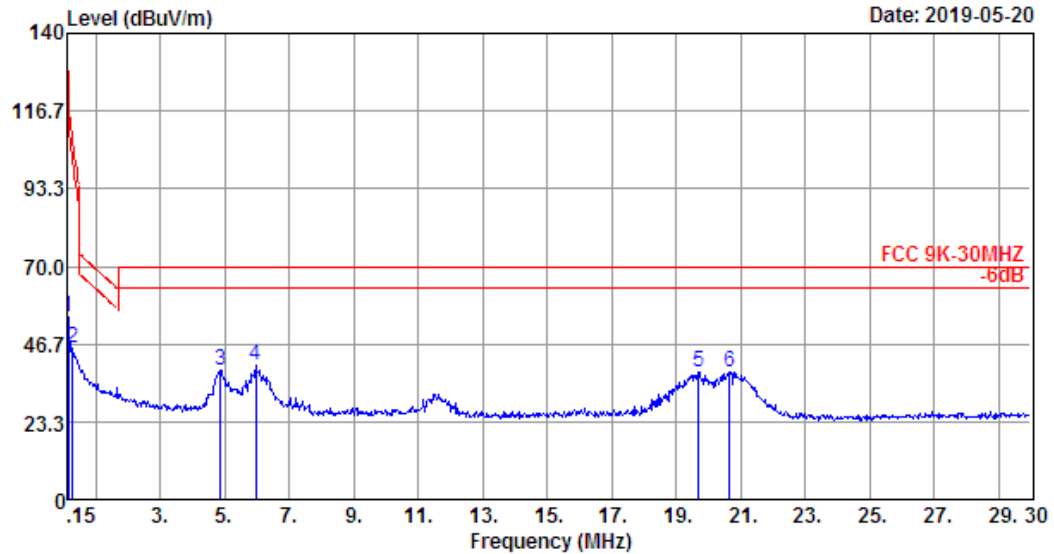
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 7

File: \\Emc-966-1\\test data\\2019\\RF\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 7
 Dis. / Ant. : 3m FMZB 1519B Ant. pol. : HORIZONTAL
 Limit : FCC 9K-30MHz
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 3.8V
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.15	20.26	0.10	34.20	54.56	118.34	63.78	Peak
2	0.30	20.07	0.10	25.44	45.61	107.57	61.96	Peak
3	4.87	20.04	0.12	18.81	38.97	69.54	30.57	Peak
4	5.97	20.00	0.12	20.16	40.28	69.54	29.26	Peak
5	19.70	20.06	0.17	18.10	38.33	69.54	31.21	Peak
6	20.66	20.10	0.17	18.01	38.28	69.54	31.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

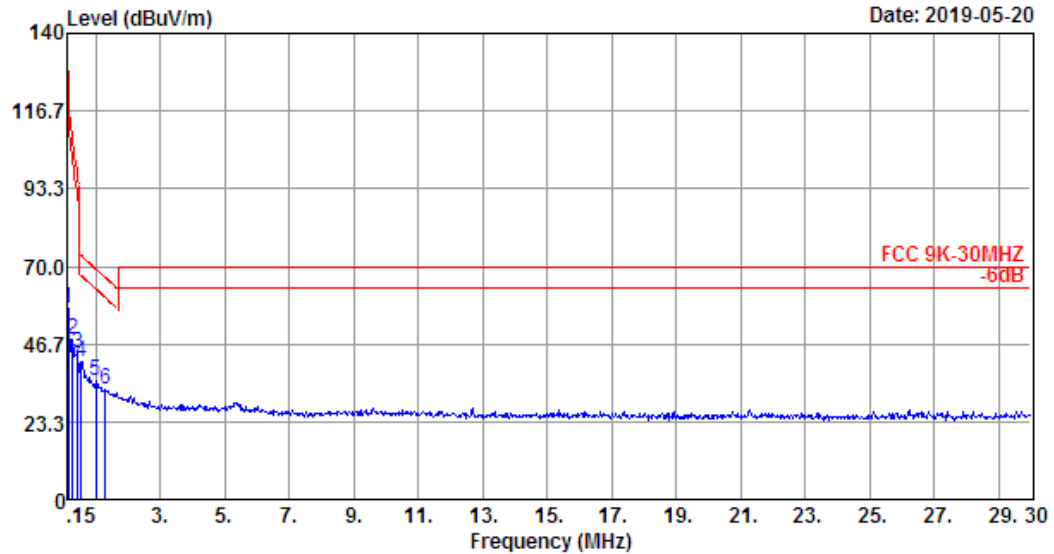
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 8

File: \\Emc-966-1\\test data\\2019\\RF\\F\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 8
 Dis. / Ant. : 3m FMZB 1519B Ant. pol. : VERTICAL
 Limit : FCC 9K-30MHZ
 Env. / Ins. : Temp:24.9';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 3.8V
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

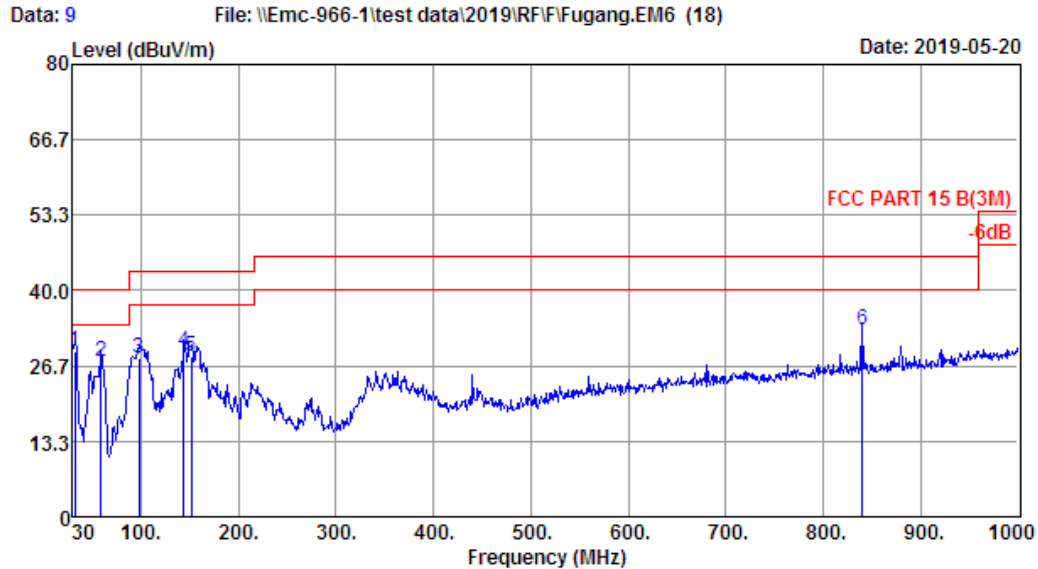
	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.15	20.26	0.10	37.10	57.46	118.34	60.88	Peak
2	0.30	20.07	0.10	27.73	47.90	107.57	59.67	Peak
3	0.45	20.08	0.10	23.76	43.94	96.80	52.86	Peak
4	0.57	20.06	0.10	20.96	41.12	73.11	31.99	Peak
5	1.02	20.01	0.10	15.50	35.61	69.11	33.50	Peak
6	1.31	20.03	0.10	12.95	33.08	66.45	33.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

30-1000 MHz

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 9
 Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	31.94	16.50	0.15	12.48	29.13	40.00	10.87	QP
2	59.10	5.10	0.42	21.95	27.47	40.00	12.53	QP
3	97.90	9.62	0.84	17.55	28.01	43.50	15.49	QP
4	143.49	11.83	1.06	16.47	29.36	43.50	14.14	QP
5	151.25	11.46	1.09	15.86	28.41	43.50	15.09	QP
6	839.95	23.30	3.71	6.17	33.18	46.00	12.82	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

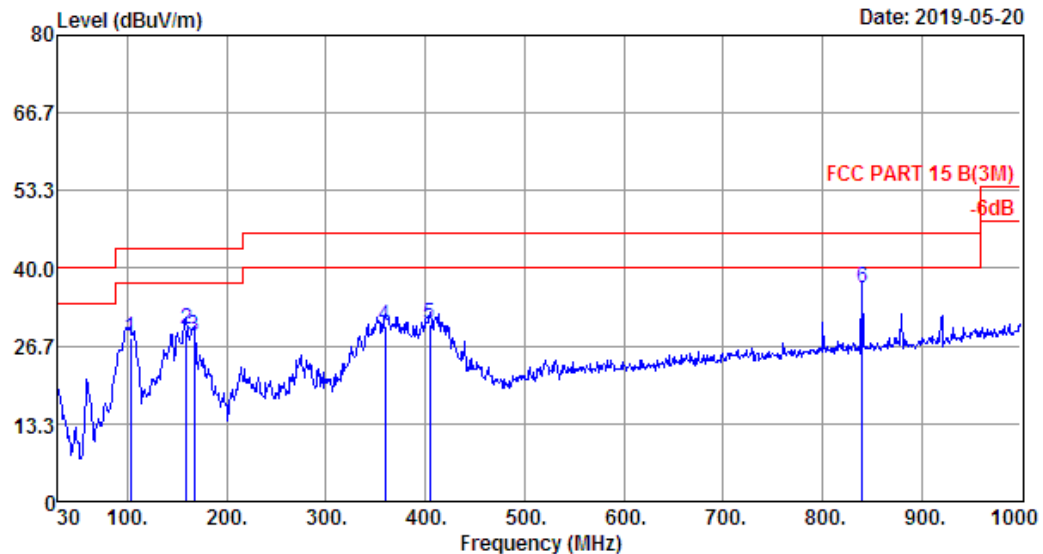
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 10

File: \\Emc-966-1\\test data\\2019\\RF\\F\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 10
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	102.75	10.00	0.88	17.15	28.03	43.50	15.47	QP
2	159.01	11.22	1.14	17.18	29.54	43.50	13.96	QP
3	166.77	10.16	1.19	16.89	28.24	43.50	15.26	QP
4	359.80	15.40	2.16	12.49	30.05	46.00	15.95	QP
5	404.42	16.19	2.12	12.07	30.38	46.00	15.62	QP
6	839.95	23.30	3.71	9.55	36.56	46.00	9.44	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

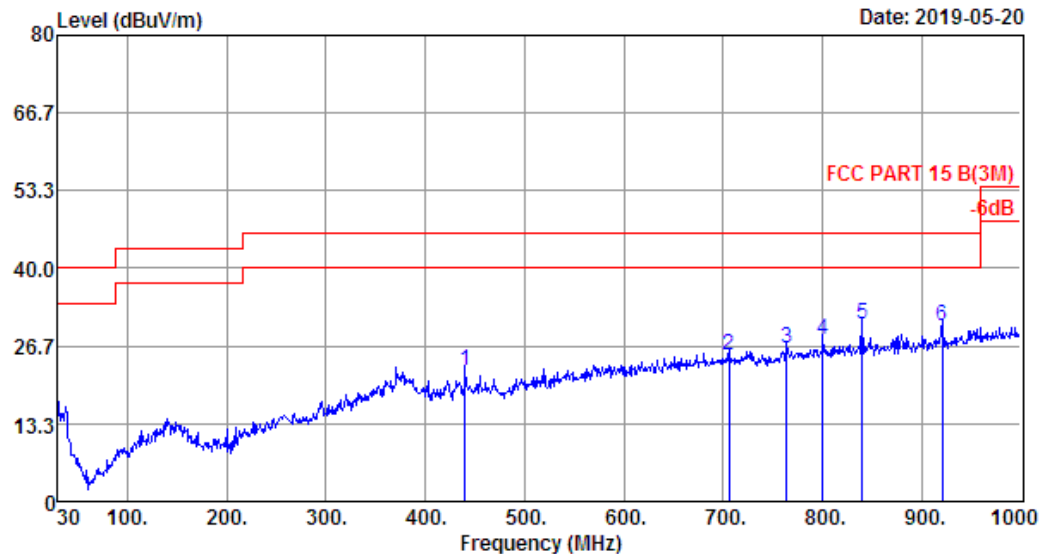
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 11

File: \\Emc-966-1\\test data\\2019\\RF\\Fugang.EM6 (18)

Date: 2019-05-20



Site no. : 1# 966 Chamber Data no. : 11
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 3.8V
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	440.31	16.80	2.45	3.16	22.41	46.00	23.59	QP
2	706.09	21.56	3.31	0.36	25.23	46.00	20.77	QP
3	764.29	22.42	3.59	0.18	26.19	46.00	19.81	QP
4	800.18	22.80	3.58	1.38	27.76	46.00	18.24	QP
5	839.95	23.30	3.71	3.36	30.37	46.00	15.63	QP
6	920.46	24.10	4.00	1.93	30.03	46.00	15.97	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

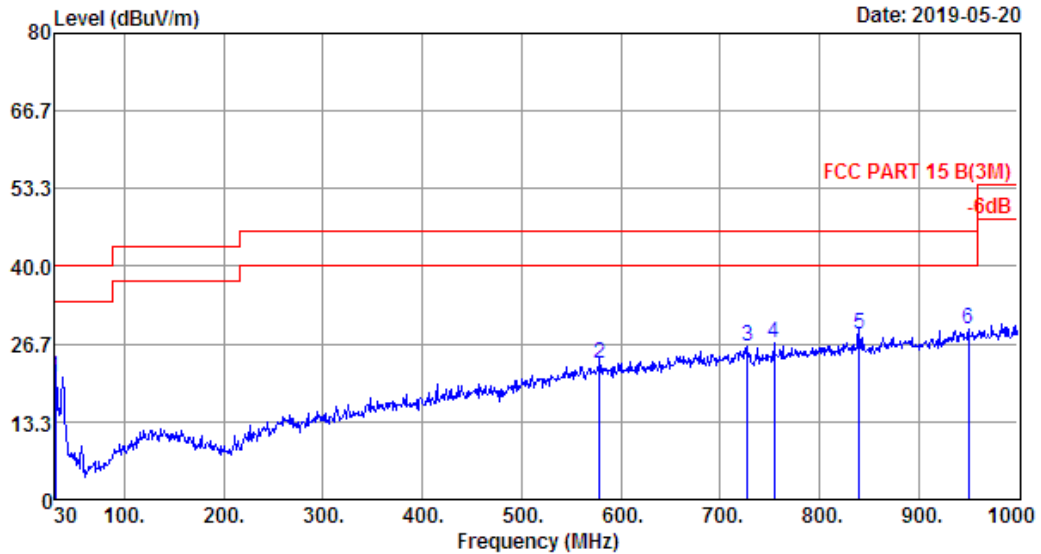
EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 12

File: \\Emc-966-1\test data\2019\RF\Fugang.EM6 (18)

Date: 2019-05-20



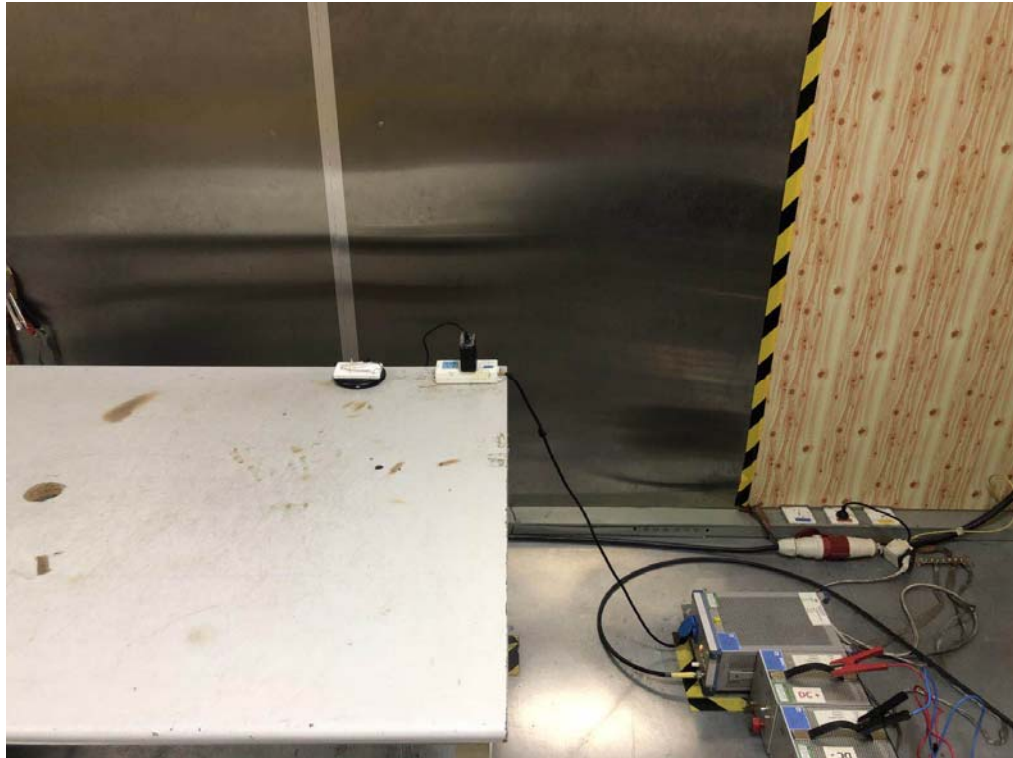
Site no. : 1# 966 Chamber Data no. : 12
 Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:24.9'; Humi:52%; Press:101.52kPa
 Engineer : Viking
 EUT : OtterSpot Wireless Charging Battery
 Power : DC 3.8V
 M/N : OBFTC-0025-A
 Test Mode : TX Mode+Charging

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
1	30.00	18.50	0.14	2.30	20.94	40.00	19.06	QP
2	579.02	19.79	2.92	0.70	23.41	46.00	22.59	QP
3	727.43	21.60	3.53	1.19	26.32	46.00	19.68	QP
4	754.59	22.08	3.63	1.05	26.76	46.00	19.24	QP
5	839.95	23.30	3.71	1.34	28.35	46.00	17.65	QP
6	950.53	24.60	4.54	0.20	29.34	46.00	16.66	QP

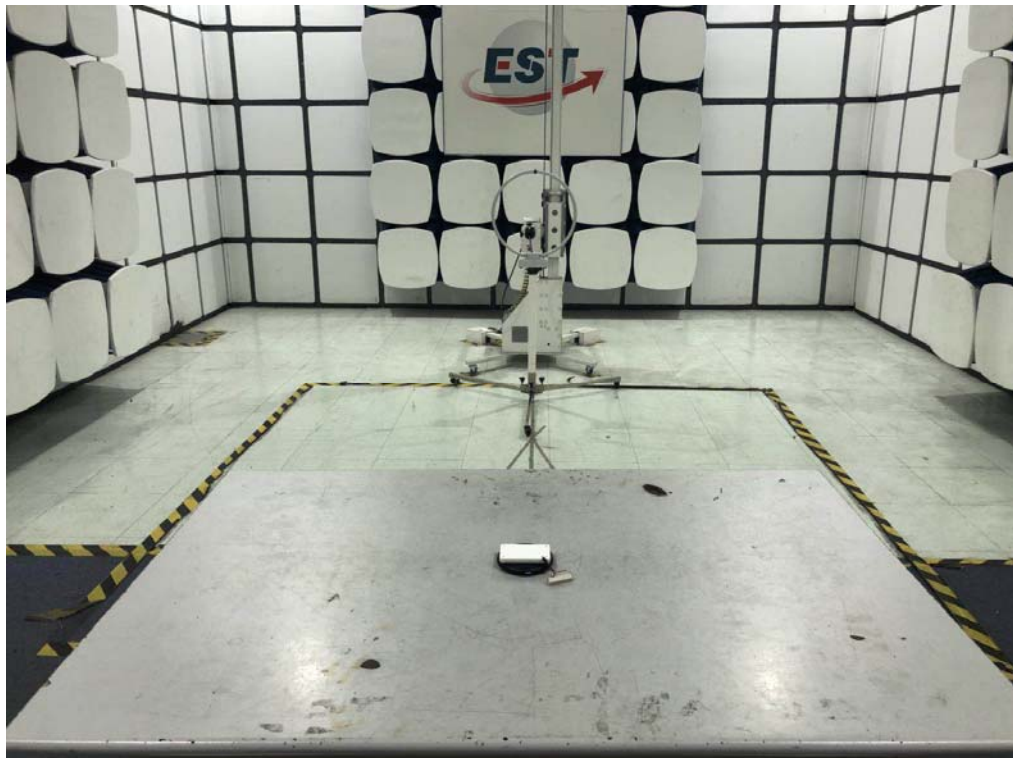
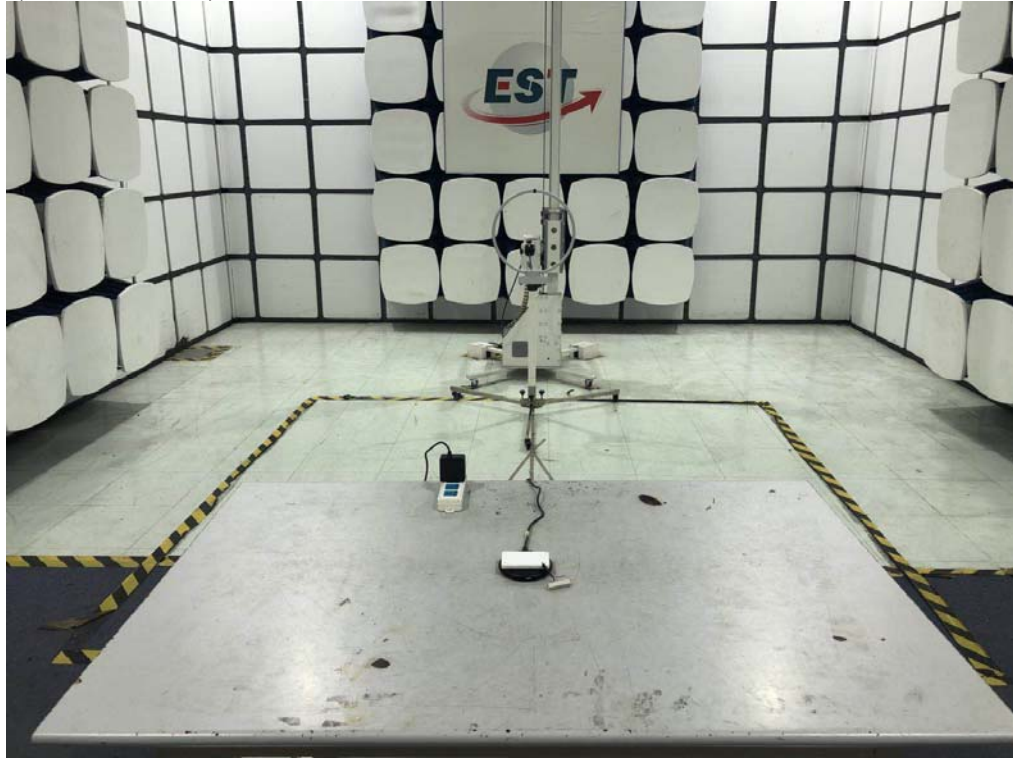
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

5 TEST SETUP PHOTO

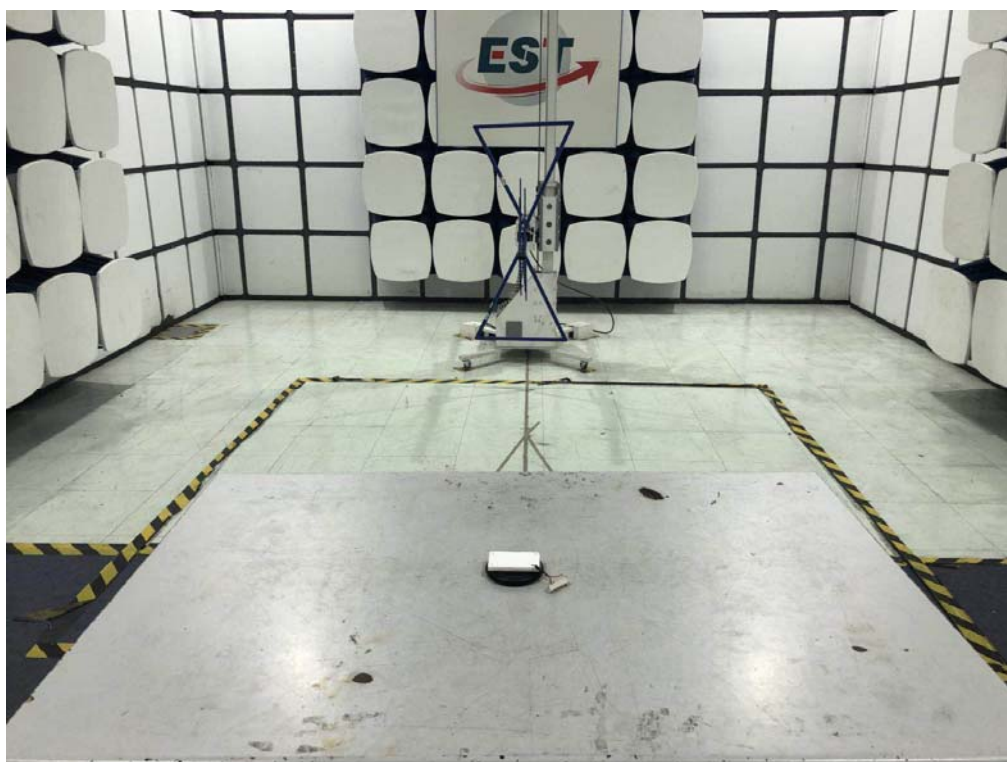
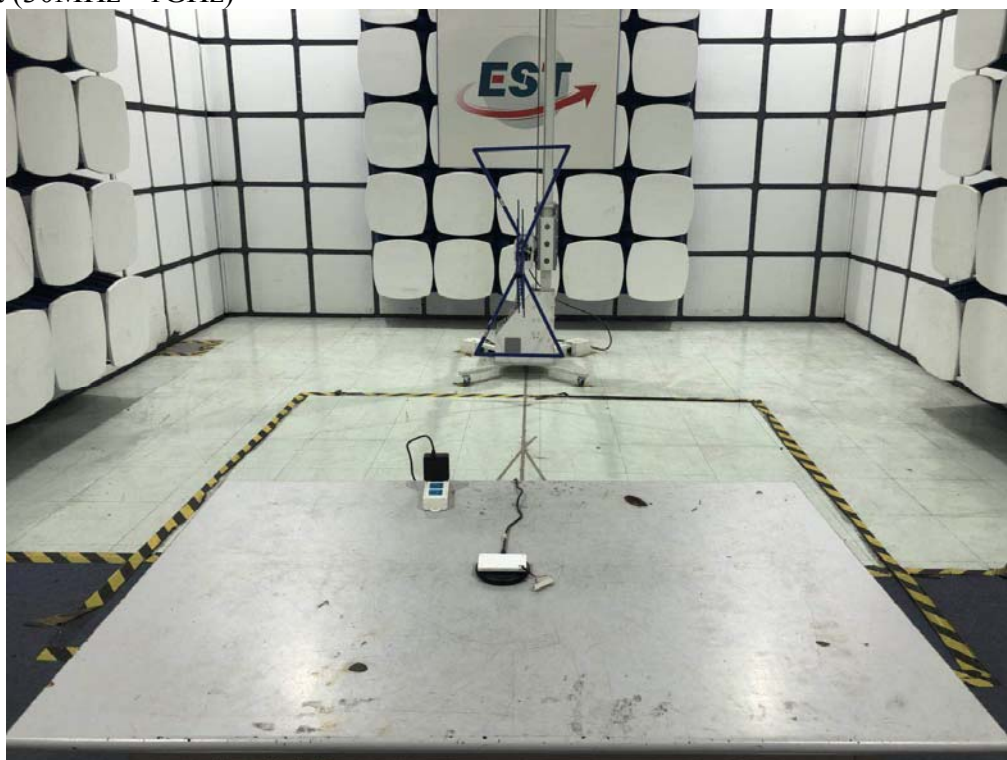
Conducted Test



Radiated Test (9kHz-30 MHz)



Radiated Test (30MHz - 1GHz)

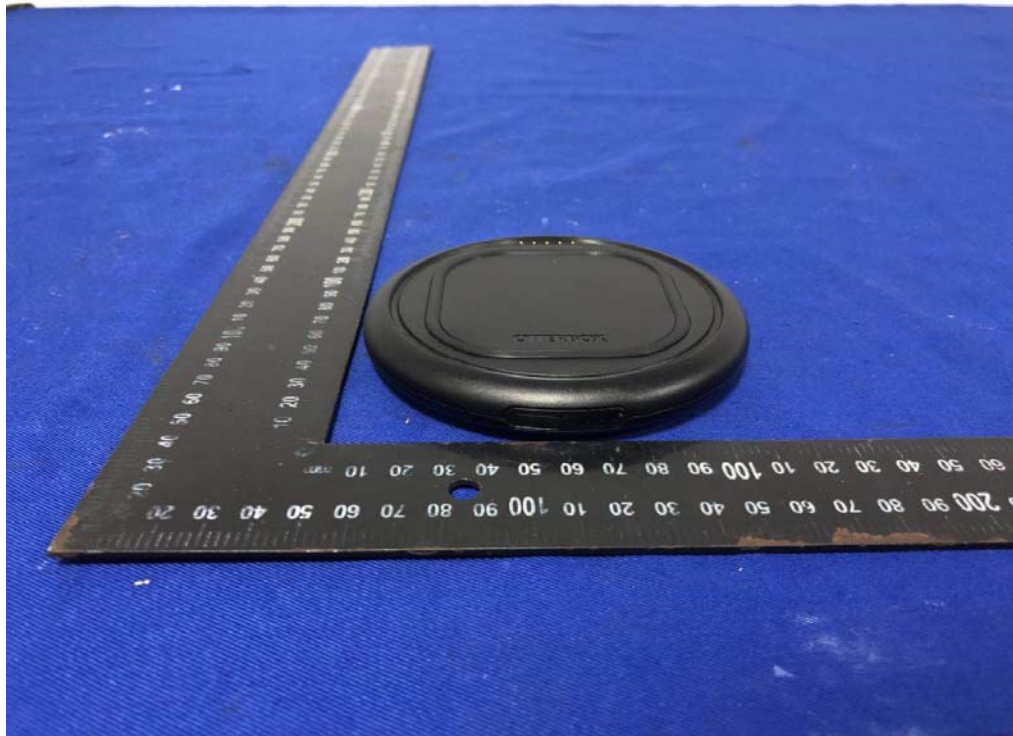


6 PHOTO EUT

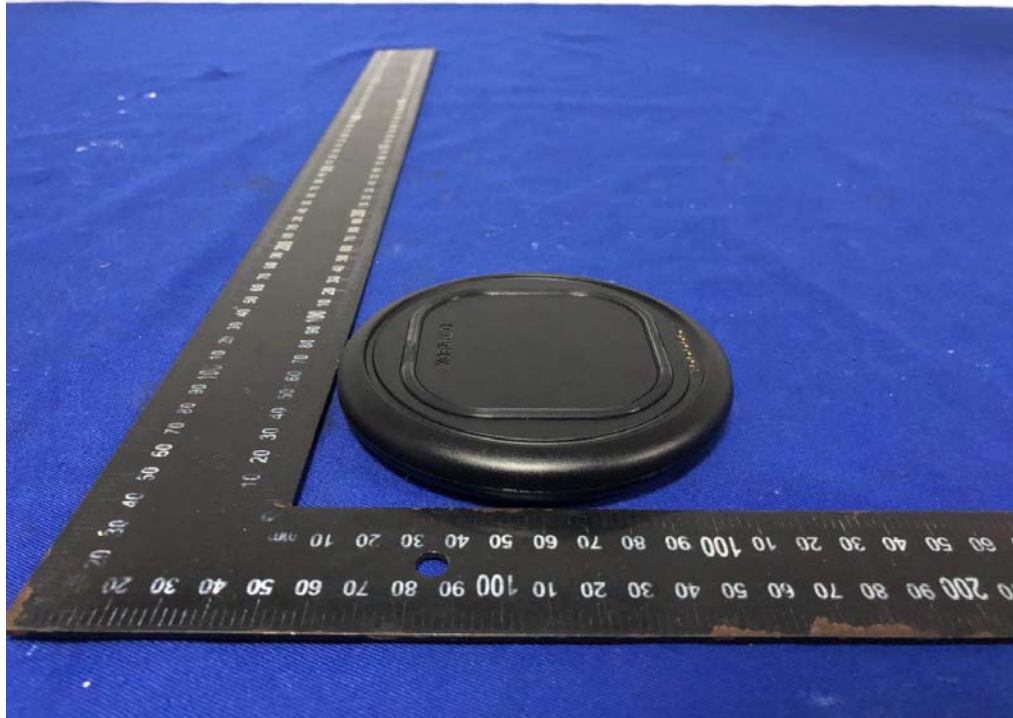
External Photos
M/N: OBFTC-0025-A



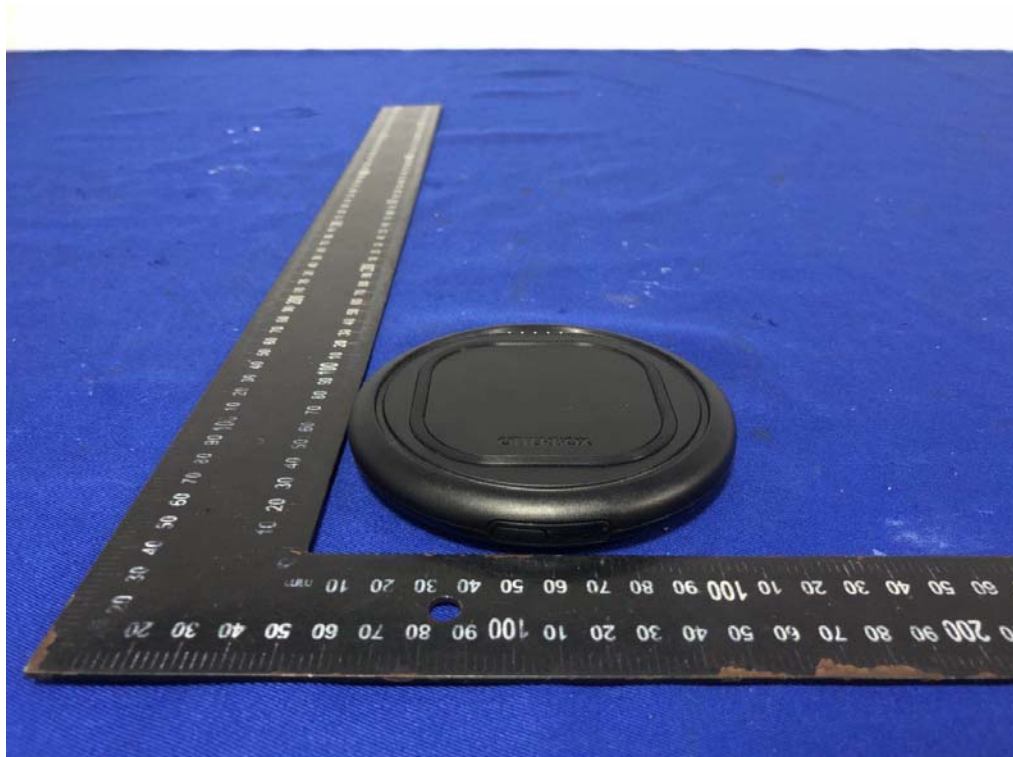
External Photos
M/N: OBFTC-0025-A



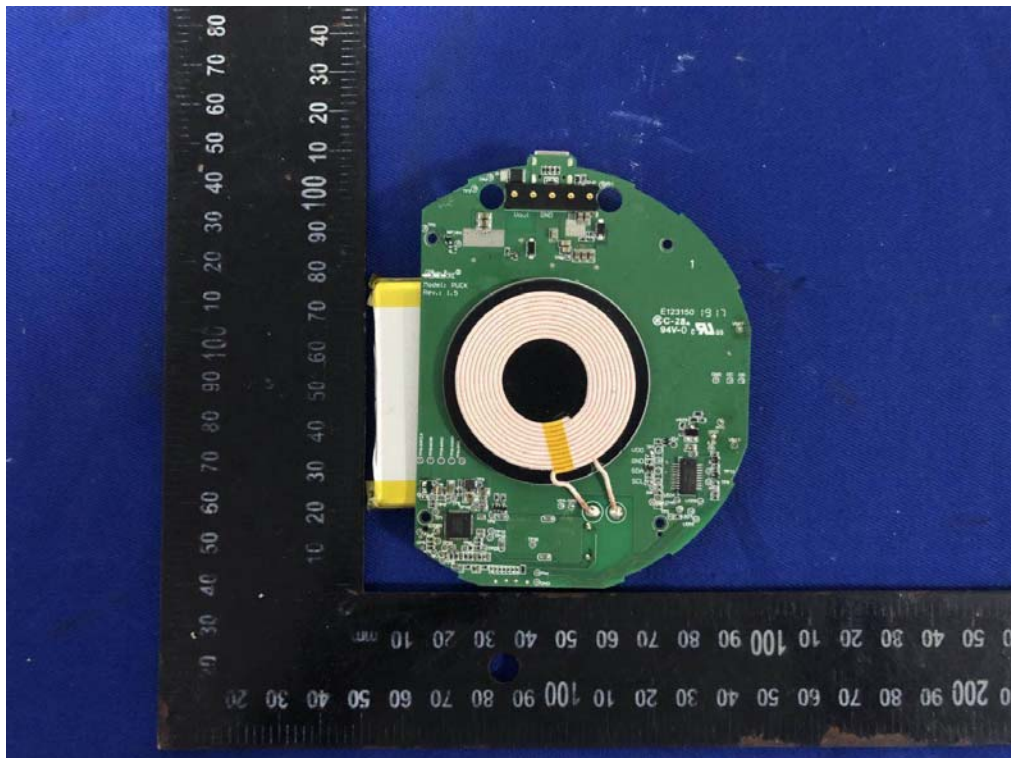
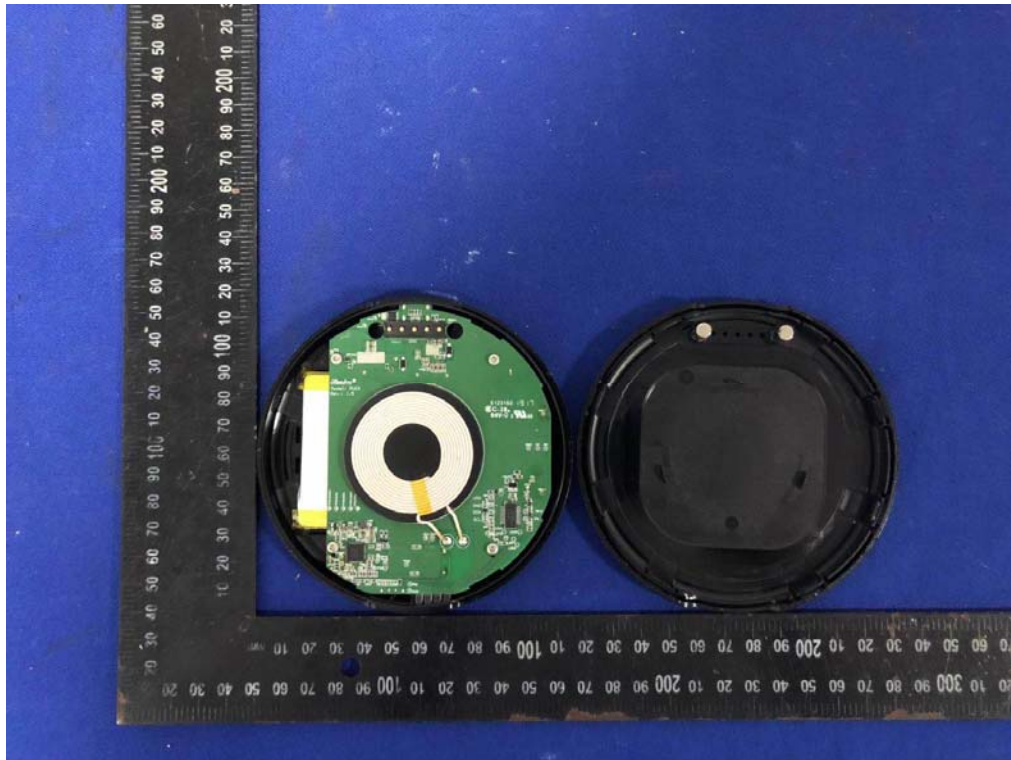
External Photos
M/N: OBFTC-0025-A



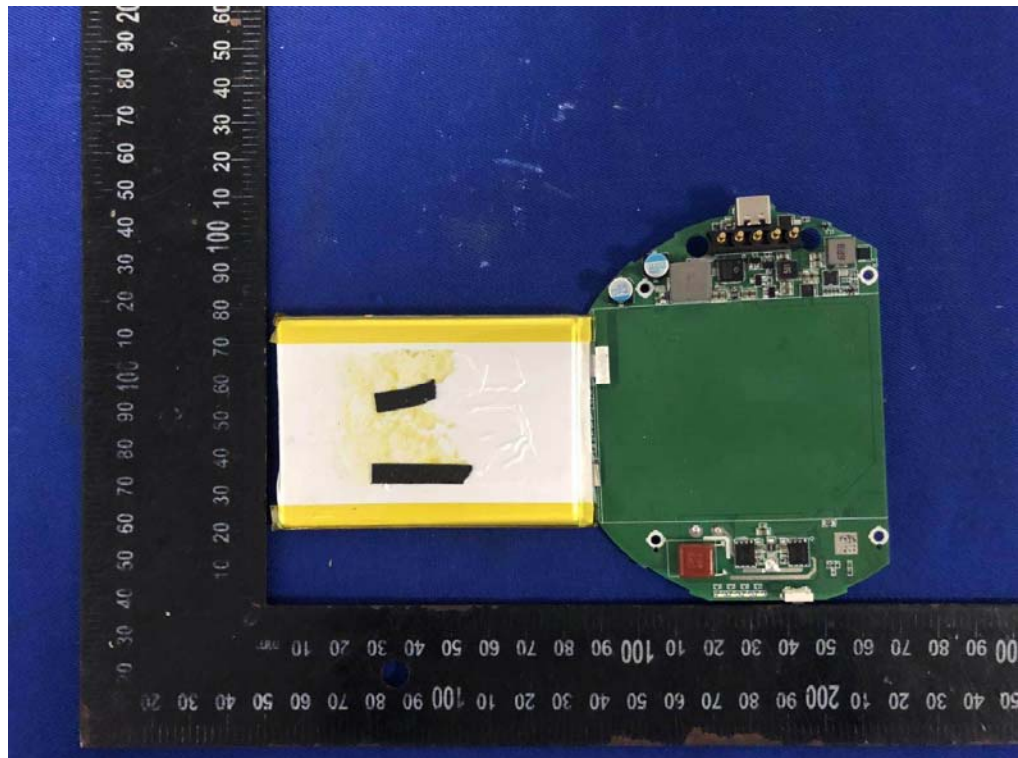
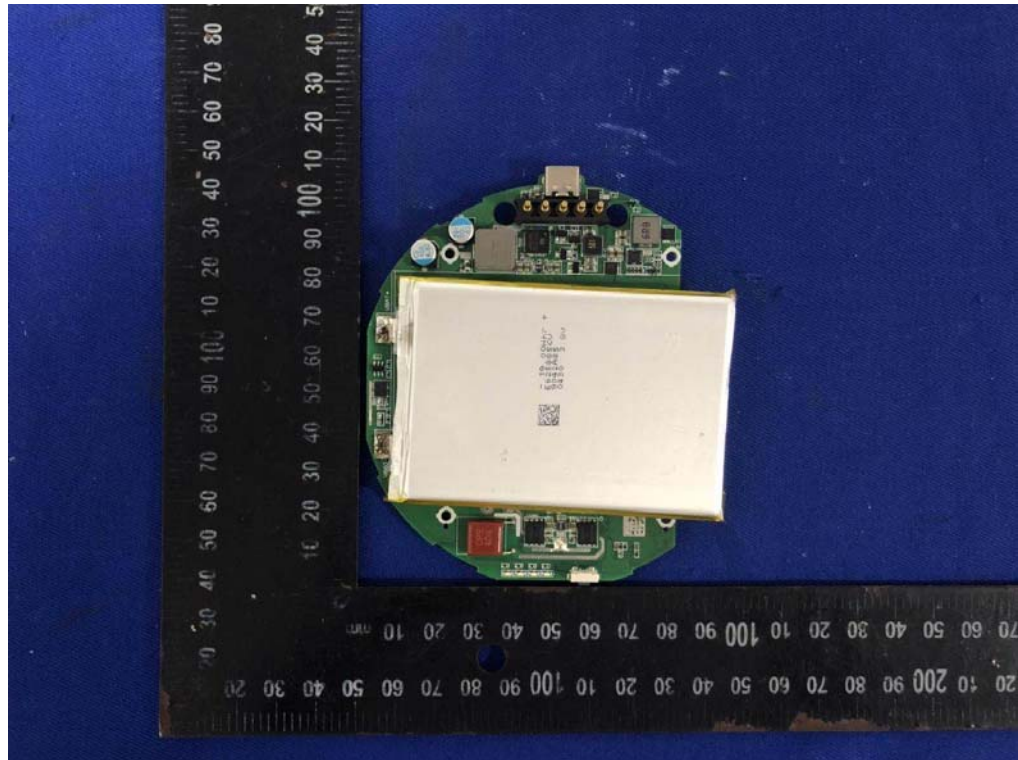
External Photos
M/N: OBFTC-0022-A



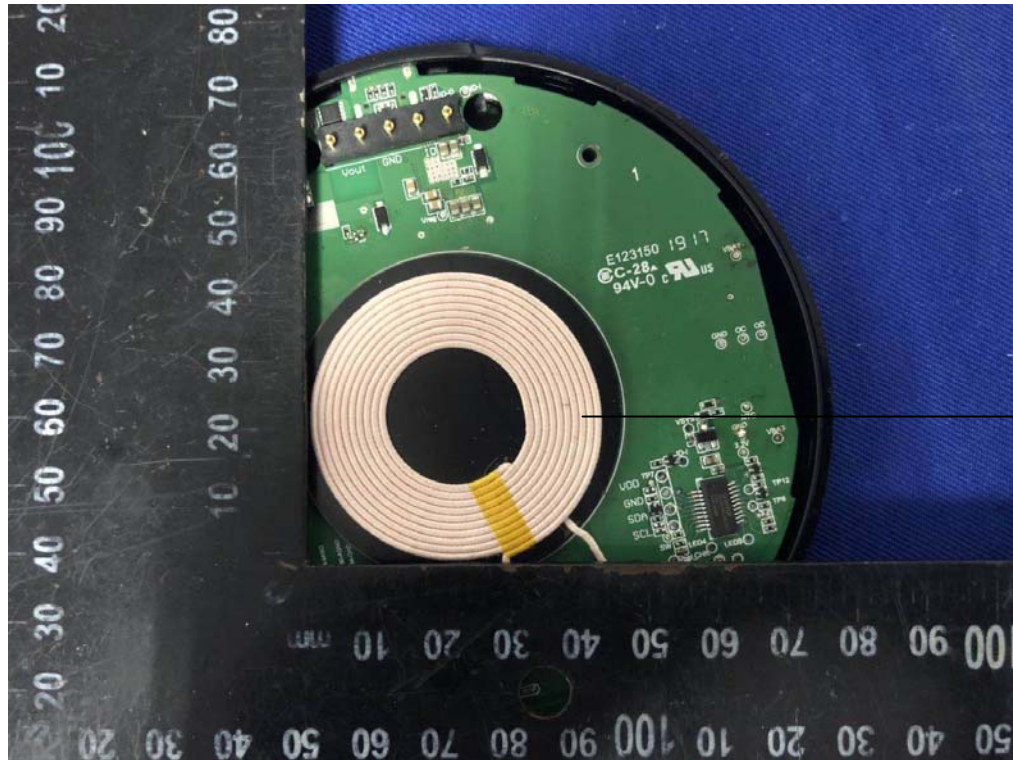
Internal Photos
M/N: OBFTC-0025-A



Internal Photos
M/N: OBFTC-0025-A



Internal Photos
M/N: OBFTC-0025-A



Coil
Antenna