Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

FCC PART 15 SUBPART C

Report Reference No.: **CTL1905091021-WF**

Compiled by: (position+printed name+signature)	Happy Guo (File administrators)	Happy Guo
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Approved by: (position+printed name+signature)	Ivan Xie (Manager)	Ivan Xie

Product Name.....:	Wireless Charging Pad
Model/Type reference .....:	CHARGEit Dock
List Model(s).....:	N/A
Trade Mark .....:	SACKit
FCC ID .....:	2AO5W- CHARGEITDOCK
Applicant's name .....:	**SACKit ApS**
Address of applicant .....:	Lyngvej 1, DK-9000 Aalborg, Denmark
Test Firm .....:	**Shenzhen CTL Testing Technology Co., Ltd.**
Address of Test Firm .....:	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Test specification.....:	
Standard.....:	**FCC Rules Part 15.207,15.209, 15.215(c)** **ANSI C63.10-2013**
TRF Originator .....:	Shenzhen CTL Testing Technology Co., Ltd.
Master TRF .....:	Dated 2011-01
Date of Receipt.....:	May 17, 2019
Date of sampling .....:	May 17, 2019
Date of Test Date.....:	May 17, 2019–May 21, 2019
Data of Issue.....:	May 30, 2019
Result .....:	Pass

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TEST REPORT

Test Report No. :	CTL1905091021-WF	May 30, 2019 Date of issue

Equipment under Test	:	Wireless Charging Pad
Model /Type	:	CHARGEit Dock
Listed Models	:	N/A
Applicant	:	**SACKit ApS**
Address	:	Lyngvej 1, DK-9000 Aalborg, Denmark
Manufacturer	:	**Shenzhen Powerqi Technology Co., Ltd.**
Address	:	2nd Floor, A4 Building, Block A, Fangxing Science & Tech. Park, Longgang District, Shenzhen, China

Test result	Pass *

*In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

** Modified History **

Revisions	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2019-05-30	CTL1905091021-WF	Tracy Qi

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1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:
FCC Rules Part 15.207,15.209, 15.215(c)

ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices

1.2. Test Description

Test Item	Test Standards	Test Result
Electric Field Radiated Emissions	FCC Part 15 C (Section15.209)	PASS
20dB Bandwidth/99% Bandwidth	FCC Part 15 C (Section15.215(c))	PASS
Conducted Emissions	FCC Part 15 C (Section15.207)	PASS

1.3. Test Facility

1.3.1Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9518B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9518B on Jan. 22, 2019.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.57 dB	(1)
Transmitter power Radiated	±2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	±2.20 dB	(1)
Occupied Bandwidth	±0.01ppm	(1)
Radiated Emission 30~1000MHz	±4.10dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)

Conducted Disturbance0.15~30MHz	±3.20dB	(1)

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

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	Wireless Charging Pad
Model/Type reference:	CHARGEit Dock
Input :	USB-C 5V/2A, 9V/1.67V
Output:	USB-A 5V/2.1A
Operation frequency:	115KHz~205KHz
Antenna type:	Loop Antennas
Antenna gain:	0dBi

Note: For more details, please refer to the user's manual of the EUT.

2.3. Special Accessories

Manufacturer	Description	Model	Serial Number
ASUS	Notebook PC	FL5900U	9014
Samsung	Phone	Galaxy s7	35615607721414

2.4. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date recent	Calibration Due Date
LISN	R&S	ENV216	3560.6550.12	2018/05/25	2019/05/24
LISN	R&S	ESH2-Z5	860014/010	2018/05/25	2019/05/24
Power Meter	Agilent	U2531A	TW53323507	2018/05/25	2019/05/24
Power Sensor	Agilent	U2021XA	MY5365004	2018/05/25	2019/05/24
EMI Test Receiver	R&S	ESCI	103710	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	E4407B	MY41440676	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9020	US46220290	2018/05/25	2019/05/24
Controller	EM Electronics	Controller EM 1000	N/A	2018/05/25	2019/05/24
Active Loop Antenna	Daze	ZN30900A	N/A	2018/05/25	2019/05/24
Bilog Antenna	Schwarzbeck	VULB 9168	00824	2018/05/25	2019/05/24
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2018/05/25	2019/05/24
Horn Antenna	SCHWARZBACK	BBHA 9170	BBHA9170184	2018/05/25	2019/05/24
Amplifier	Agilent	8349B	3008A02306	2018/05/25	2019/05/24
Amplifier	Agilent	8447D	2944A10176	2018/05/25	2019/05/24
Temperature/Humidity Meter	Gangxing	CTH-608	02	2018/05/25	2019/05/24

High-Pass Filter	K&L	9SH10-2700/X12750-O/O	N/A	2018/05/25	2019/05/24
High-Pass Filter	K&L	41H10-1375/U12750-O/O	N/A	2018/05/25	2019/05/24
Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	2018/05/25	2019/05/24
Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	2018/05/25	2019/05/24
Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	2018/05/25	2019/05/24
RF Cable	Megalon	RF-A303	N/A	2018/05/25	2019/05/24
EMI Test Software	R&S	ES-K1	V1.7.1	2018/05/25	2019/05/24
EMI Test Software	AUDIX	E3	V6.0	2018/05/25	2019/05/24

The calibration interval was one year

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

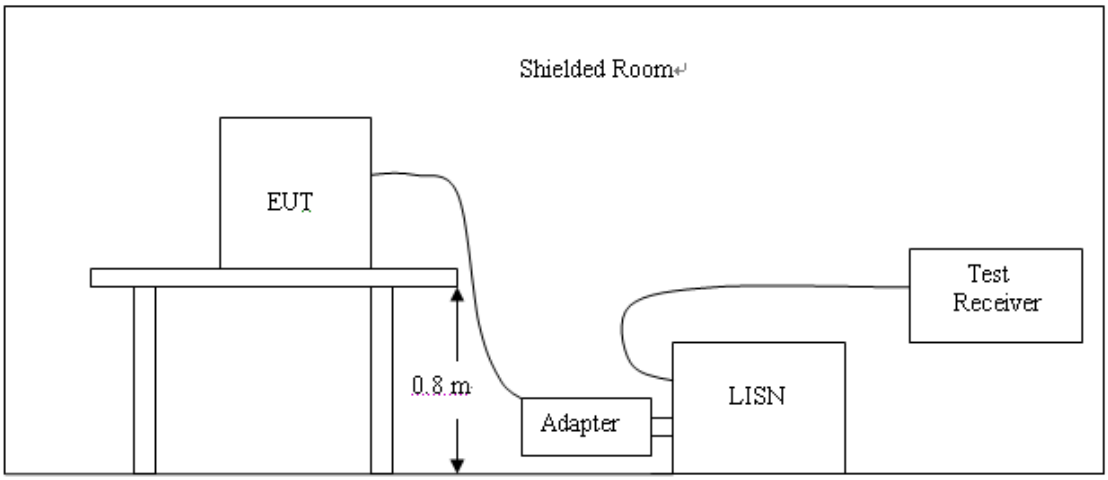
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

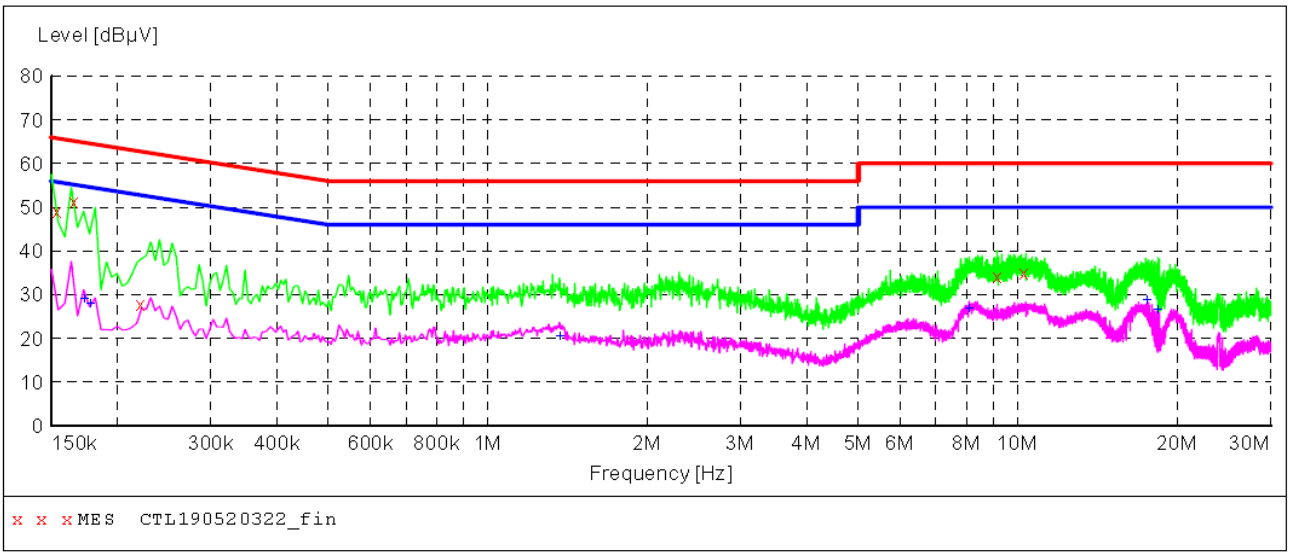
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Note: Both power supply modes have been tested, and the following data are the worst

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL190520322_fin"

2019-5-20 05:06??

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	49.20	11.2	66	16.6	QP	L1	GND
0.166000	51.30	11.2	65	13.9	QP	L1	GND
0.222000	27.90	11.2	63	34.8	QP	L1	GND
9.176000	34.30	11.1	60	25.7	QP	L1	GND
10.322000	35.00	11.1	60	25.0	QP	L1	GND

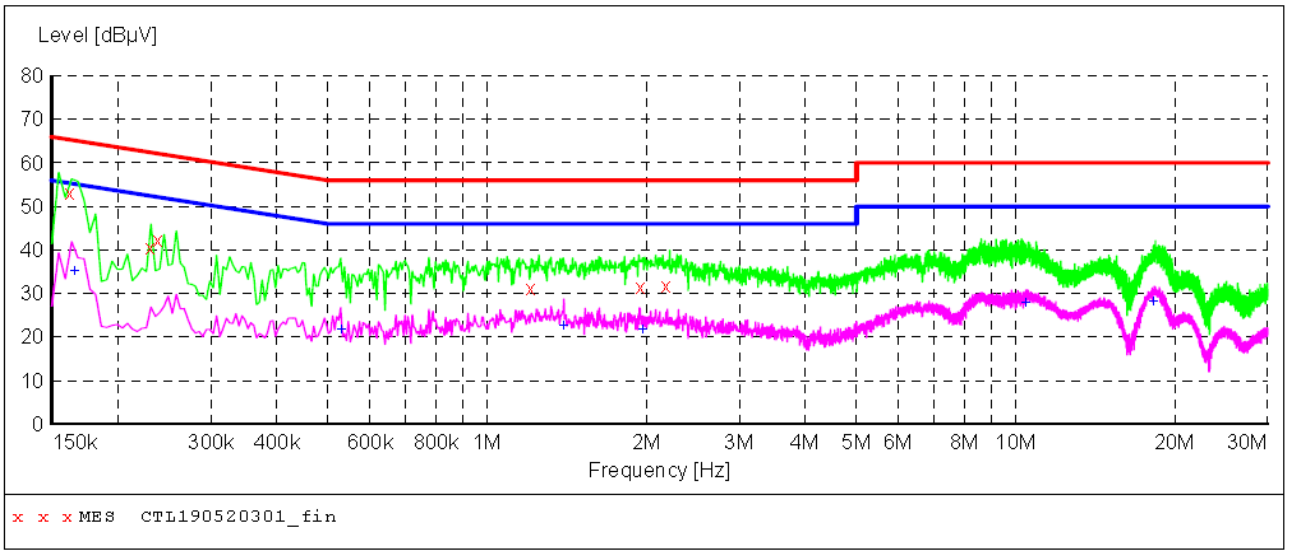
MEASUREMENT RESULT: "CTL190520322_fin2"

2019-5-20 05:06??

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.174000	28.90	11.2	55	25.9	AV	L1	GND
0.178000	28.00	11.2	55	26.6	AV	L1	GND
1.376000	20.50	11.3	46	25.5	AV	L1	GND
8.126000	26.90	11.0	50	23.1	AV	L1	GND
17.624000	28.80	11.3	50	21.2	AV	L1	GND
18.434000	26.60	11.4	50	23.4	AV	L1	GND

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL190520301_fin"

2019-5-20 05:03??

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	53.10	11.2	65	12.3	QP	N	GND
0.230000	40.60	11.2	62	21.8	QP	N	GND
0.238000	42.40	11.2	62	19.8	QP	N	GND
1.208000	31.20	11.3	56	24.8	QP	N	GND
1.958000	31.50	11.3	56	24.5	QP	N	GND
2.180000	31.70	11.4	56	24.3	QP	N	GND

MEASUREMENT RESULT: "CTL190520301_fin2"

2019-5-20 05:03??

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.166000	35.40	11.2	55	19.8	AV	N	GND
0.530000	21.90	11.2	46	24.1	AV	N	GND
1.394000	22.60	11.3	46	23.4	AV	N	GND
1.970000	21.80	11.3	46	24.2	AV	N	GND
10.460000	28.10	11.1	50	21.9	AV	N	GND
18.326000	28.30	11.4	50	21.7	AV	N	GND

3.2. Radiated Emissions

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

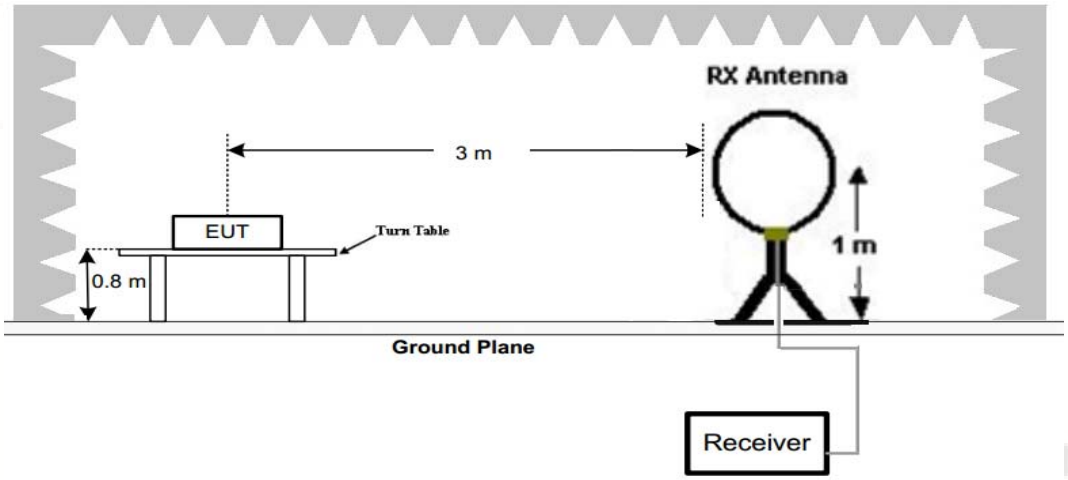
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

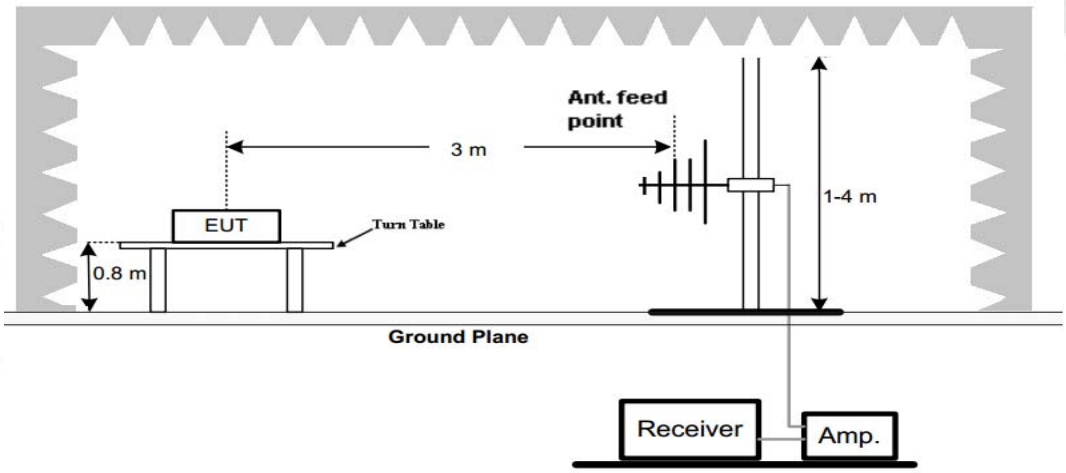
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

1. Radiated Emission Test Set-Up, Frequency Below 30MHz



2. Radiated Emission Test Set-Up, Frequency below 1000MHz



Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 1000MHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP

Test Results

WORST-CASE RADIATED EMISSION BELOW 30 MHz

Frequency	Reading	Polar	Antenna Factor	Cable Loss	Emission Levels	Limits at 3m	Margin	Detector Mode
(MHz)	(dBμV/m)	Loop	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
0.124(F)	55.47	Loop	23.64	0.01	79.12	105.74	26.62	PK
0.124(F)	45.91	Loop	23.64	0.01	69.56	85.74	16.18	AV
0.110	37.33	Loop	23.55	0.01	60.89	106.78	45.89	PK
0.110	31.58	Loop	23.55	0.01	55.14	86.78	31.64	AV
0.495	25.48	Loop	25.07	-0.17	50.38	73.71	23.33	QP
1.654	16.95	Loop	27.12	-0.25	43.82	63.23	19.41	QP
2.418	16.86	Loop	23.91	-0.24	40.53	69.54	29.01	QP
--	--	--	--	--	--	--		--

Remark:
1. Data of measurement within this frequency range shown "-- in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits and not recorded.
2. The test limit distance is 3m limit.
3. PK means Peak Value, QP means Quasi Peak Value, AV means Average Value.
4. F means Fundamental Frequency.
5. Emission level (dBuV/m) =Reading + Antenna Factor + Cable Loss.
6. Margin value = Limit value- Emission level.

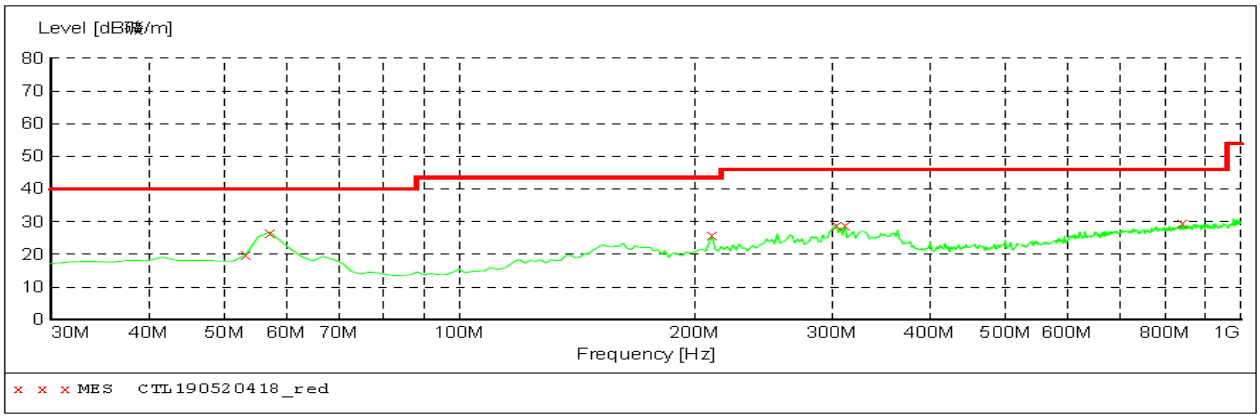
For 30MHz-1GHz

Note: Both power supply modes have been tested, and the following data are the worst

Horizontal

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	VULB9168



MEASUREMENT RESULT: "CTL190520418_red"

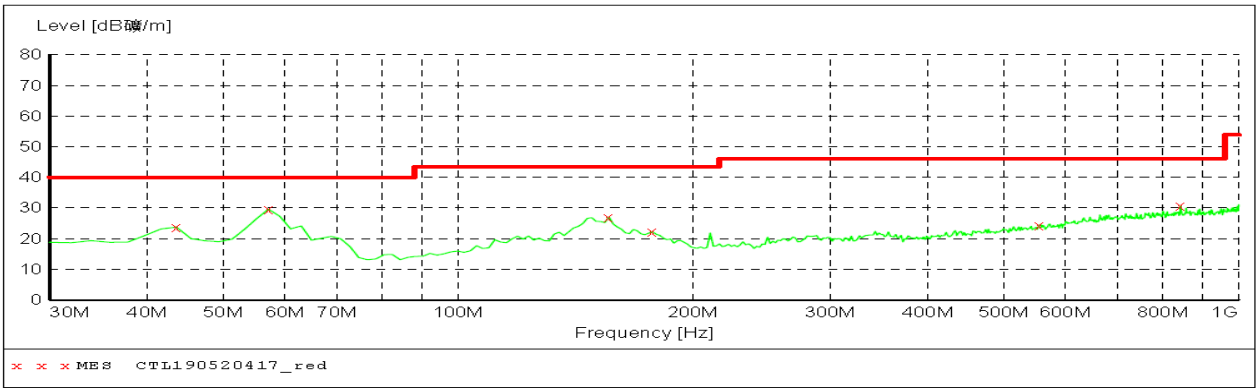
2019-5-20 9:26

Frequency MHz	Level dB礦/m	Transd dB	Limit dB礦/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	19.90	13.9	40.0	20.1	---	0.0	0.00	HORIZONTAL
57.160000	26.70	13.6	40.0	13.3	---	0.0	0.00	HORIZONTAL
210.420000	25.80	11.3	43.5	17.7	---	0.0	0.00	HORIZONTAL
303.540000	29.00	14.2	46.0	17.0	---	0.0	0.00	HORIZONTAL
311.300000	28.90	14.4	46.0	17.1	---	0.0	0.00	HORIZONTAL
842.860000	29.60	23.0	46.0	16.4	---	0.0	0.00	HORIZONTAL

Vertical

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	VULB9168



MEASUREMENT RESULT: "CTL190520417_red"

2019-5-20 9:24

Frequency MHz	Level dB礦/m	Transd dB	Limit dB礦/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
43.580000	23.70	14.5	40.0	16.3	---	0.0	0.00	VERTICAL
57.160000	29.60	13.6	40.0	10.4	---	0.0	0.00	VERTICAL
156.100000	27.00	15.2	43.5	16.5	---	0.0	0.00	VERTICAL
177.440000	22.20	13.2	43.5	21.3	---	0.0	0.00	VERTICAL
555.740000	24.40	19.2	46.0	21.6	---	0.0	0.00	VERTICAL
842.860000	30.70	23.0	46.0	15.3	---	0.0	0.00	VERTICAL

3.3. 20dB Bandwidth

Limit

The 20dB bandwidth shall be less than 80% of the permitted frequency band.

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 KHz RBW and 100 KHz VBW.

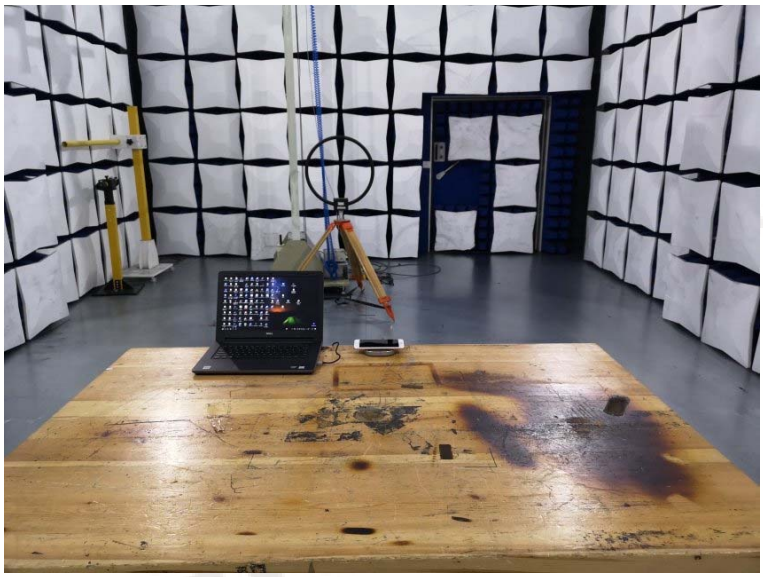
The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Test Configuration

Test Results

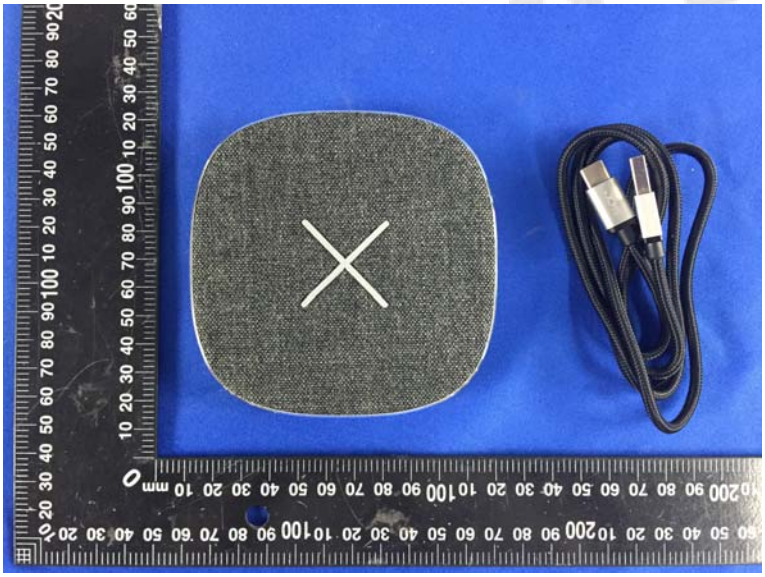
Frequency (MHz)	20dB bandwidth (KHz)	99% OBW (KHz)	Result
0.124	2.829	2.518	Pass

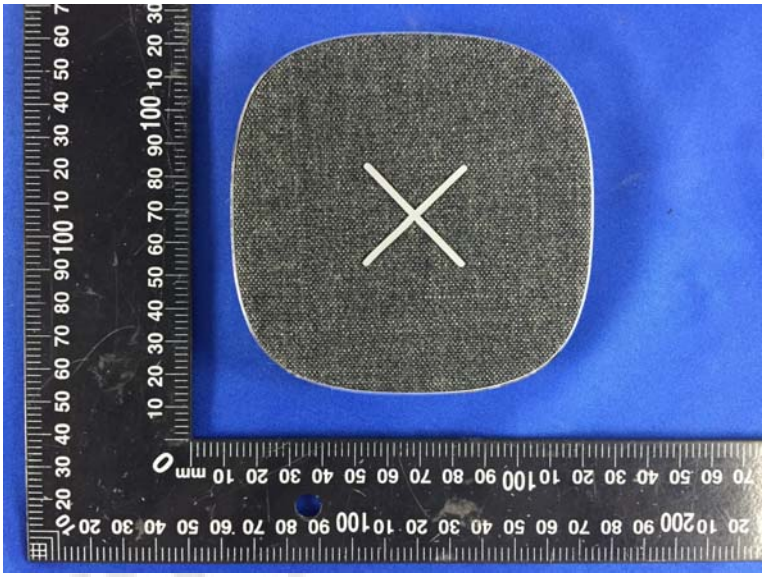
4. Test Setup Photos of the EUT

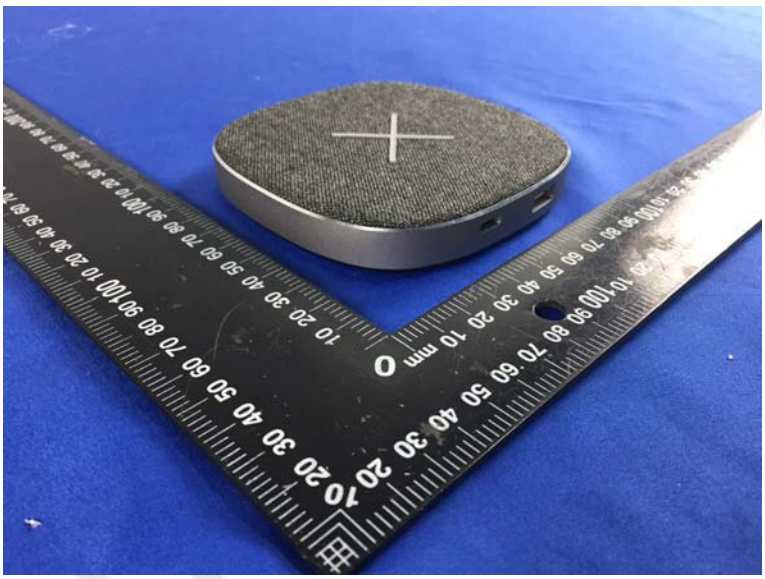


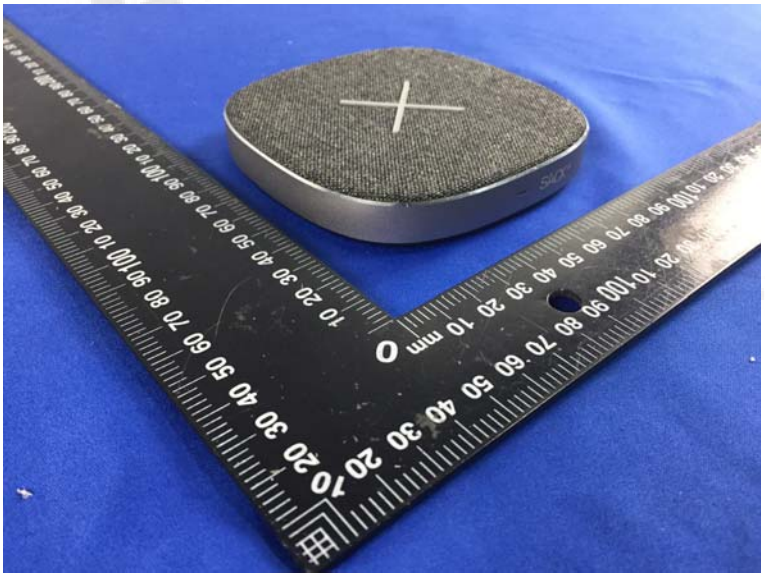
5. Photos of the EUT

External Photos of EUT

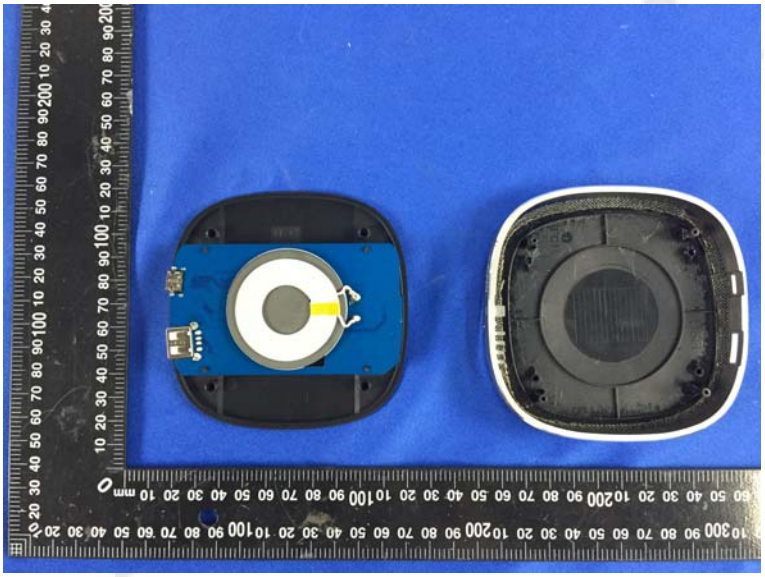


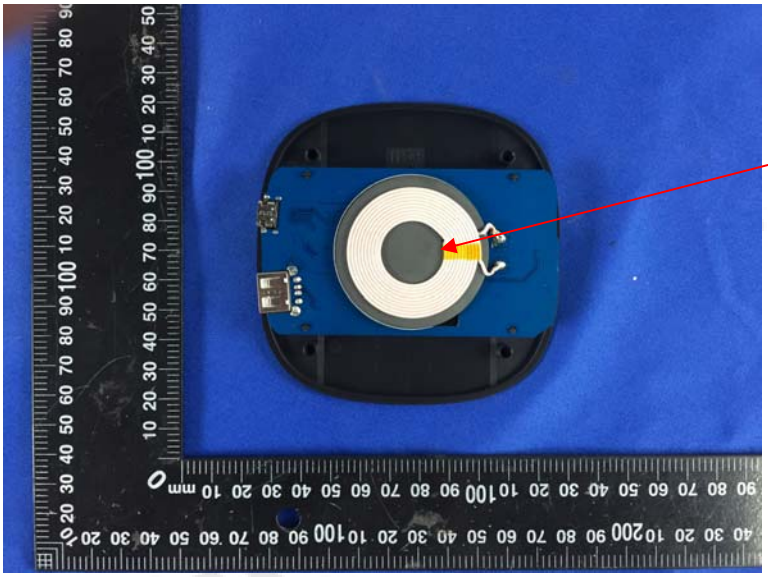


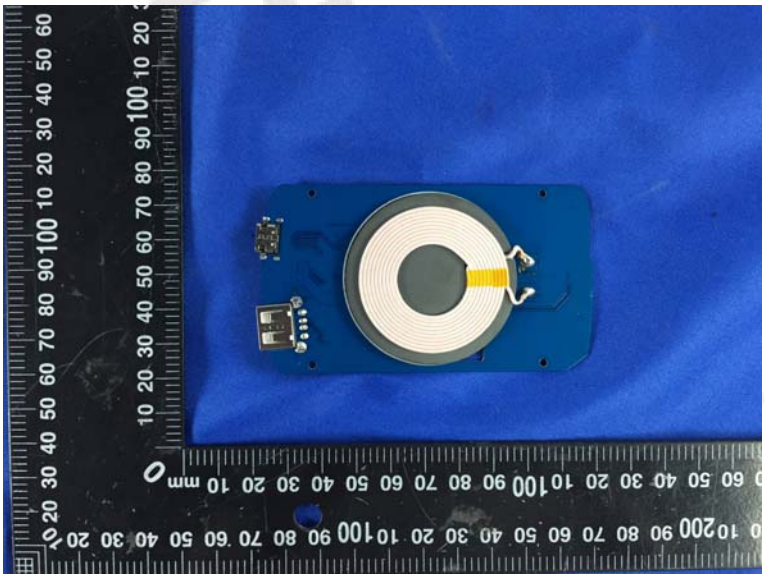


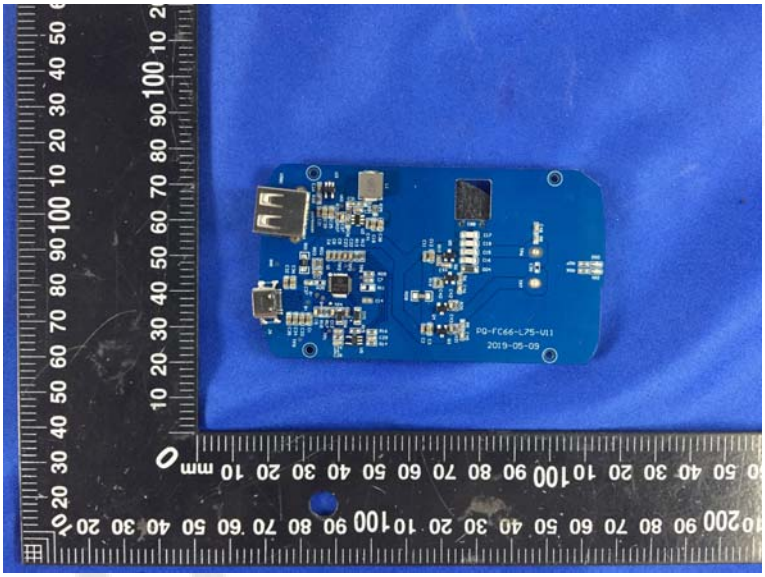


Internal Photos of EUT





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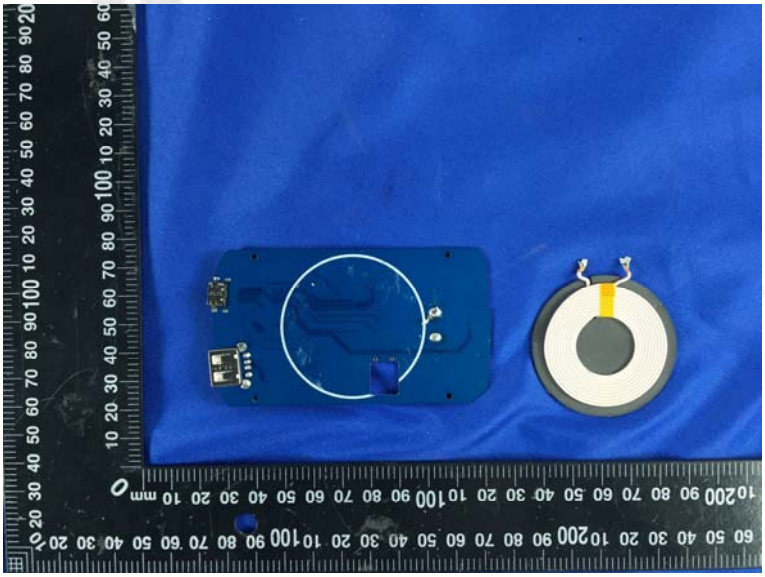

********** End of Report **********