FCC PART 15C

TEST REPORT

For

Sichuan E-power Technology Co., Ltd

Room B2 building, Xinxing industrial park, #916 Tiangong street,
Tianfu new district, Chengdu, Sichuan, 610217 China

FCC ID: 2AN3VEPFA13-1

Report Type:	**Product Name:**
Original Report	Wireless Charger Dock

Report Number:	RSC180425001
Report Date:	2018-05-16
Reviewed By:	Sula Huang Engineering Director
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: 028-65525123 Fax: 028-65525125 www.baclcorp.com

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Chengdu). This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA* or any agency of the Federal Government. * This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*".

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The **Sichuan E-power Technology Co., Ltd**, model number: **FA13 (FCC ID: 2AN3VEPFA13-1)** or the "EUT" as referred to in this report was the **Wireless Charger Dock**.

Mechanical Description of EUT

The EUT was measured approximately 100mm (D) x 10mm (H).

Rated input voltage: DC 9V from adapter.

Note: *The products, test model: FA13, multiple model: FA13-1, HC000013. We selected model: FA13 to fully test, please refer to the Difference Declaration Letter provided by the manufacturer.*

**All measurement and test data in this report was gathered from final production sample, serial number: 180425001/01 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2018-04-20, and EUT conformed to test requirement.*

Objective

This Type approval report is prepared on behalf of ***Sichuan E-power Technology Co., Ltd*** in accordance with Part 2, Subpart J, and Part 15, Subparts A and C of the Federal Communications Commission's rules.

The objective is to determine the compliance of the EUT with FCC rules, sec 15.203, 15.205, 15.207 and 15.209.

Related Submittal(s)/Grant(s)

No

Measurement Uncertainty

Item			Uncertainty
AC power line conducted emission			2.71dB
Radiated Emission(Field Strength)	9kHz-30MHz		6.10dB
	30MHz-200MHz	H	4.57dB
		V	4.81dB
	200MHz-1GHz	H	5.69dB
		V	6.07dB

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Chengdu). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Chengdu) to collect test data is located No.5040, Huilongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 910975, the FCC Designation No. : CN1186.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062C-1.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

N/A

Support Equipment List and Details

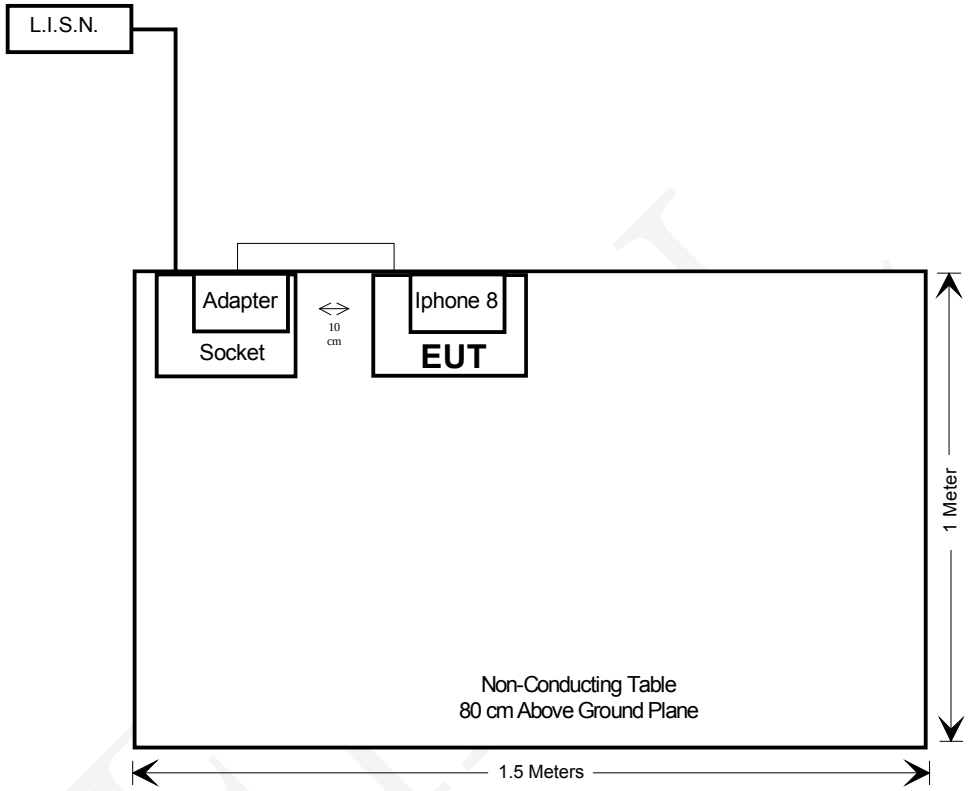
Manufacturer	Description	Model	Serial Number
Apple Inc.	Iphone 8	MQ6MZCH/A	C7CV95M4JC6F
Shenzhen Hua Cologne Electronics	Adapter	HKL-USB27	None

External I/O Cable

Cable Description	Length (m)	From	To
Unshielded USB Cable	1.0	Adapter	EUT

Block Diagram of Test Setup

AC power line conducted emission Test



Test Equipments List

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2018-04-18	2019-04-17
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2018-04-18	2019-04-17
Rohde & Schwarz	RF Limiter	ESH3Z2	DE14781	2017-11-10	2018-11-09
N/A	Conducted Cable	L-E003	N/A	2017-11-10	2018-11-09
Rohde & Schwarz	EMC32	N/A	V 8.52.0	N/A	N/A
Radiated Emissions Test					
EMCT	Semi-Anechoic Chamber	966	N/A	2017-05-18	2022-05-17
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2018-04-18	2019-04-17
SONOMA INSTRUMENT	Amplifier	310N	186684	2017-08-24	2018-08-23
ETS.LINDGREN	Passive Loop Antenna	6512	0004050	2017-11-09	2018-11-08
SUNOL SCIENCES	Broadband Antenna	JB3	A121808	2017-05-19	2020-05-18
INMET	Attenuator	18N-6dB	64671	2017-11-10	2018-11-09
N/A	RF Cable (below 1GHz)	L-E005	N/A	2017-11-10	2018-11-09
N/A	RF Cable (below 1GHz)	T-E128	N/A	2017-11-10	2018-11-09
N/A	RF Cable (below 1GHz)	T-E129	N/A	2017-11-10	2018-11-09
Rohde & Schwarz	EMC32	N/A	V 8.52.0	N/A	N/A
RF Exposure					
NARDA	Magnetic field meter	ELT-400	423314	2018-04-24	2019-04-23
NARDA	E-field Probe	EF-0391	D-0607	2018-04-24	2019-04-23
NARDA	Magnetic Probe	HF-3061	D-0228	2018-04-24	2019-04-23
ETS.LINDGREN	Isotropic Field Probe	HI-6005	00205859	2018-03-05	2019-03-05
ETS.LINDGREN	ProbeView LT	N/A	V 1.0.5	N/A	N/A

*** Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§1.1307, §1.1310	RF Exposure	Compliance
§15.207	Conducted Emissions	Compliance
§15.209, §15.205	Radiated Emissions	Compliance

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Antenna Connected Construction

The EUT has one integrated loop inductive antenna arrangement, which was permanently attached and fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

FCC §1.1307 & 1.1310 – RF EXPOSURE

Applicable Standard

FCC §1.1307 & 1.1310

According to the item 5. b) of KDB 680106 D01 RF Exposure Wireless Charging Apps v03:

Inductive wireless power transfer applications with supporting field strength results and meeting all of the following requirements are not required to submit a KDB inquiry for devices approved using SDoC or a PAG for equipment approved using certification to address RF exposure compliance.

(1) Power transfer frequency is less than 1 MHz.

(2) Output power from each primary coil is less than or equal to 15 watts.

(3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

(4) Client device is placed directly in contact with the transmitter.

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

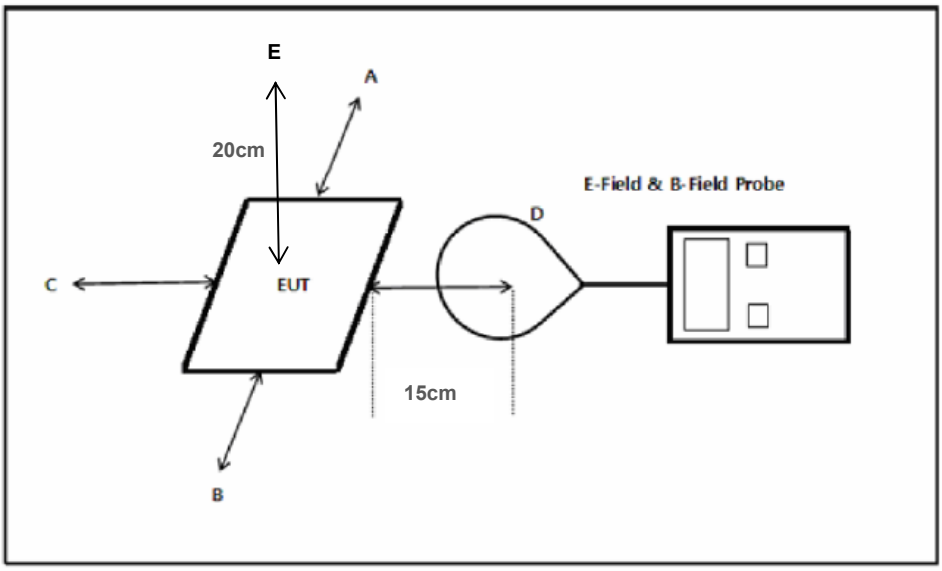
(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz
*= Plane-wave equivalent power density

EUT Setup



Result

1) Power transfer frequency is less that 1 MHz.
The device operates in the frequency 110 kHz-148 kHz.

2) Output power from each primary coil is less than or equal to 15 watts.
The maximum output power of the primary coil is 10W<15W.

3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

The transfer system including a charging system with only single primary coils is to detect and allow only between individual of coils.

4) Client device is placed directly in contact with the transmitter.

Client device is placed directly in contact with the transmitter.

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
The device is not for portable use.

6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
The measured H-field strengths is less than 50% of the MPE limit.

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	51 %
ATM Pressure:	96.2 kPa

The testing was performed by Lorin Bian on 2018-05-03.

Please refer the results below.

E-field strengths at 15 cm surrounding the device and 20 cm above the top surface

Frequency Range (kHz)	**Position A (V/m)**	**Position B (V/m)**	**Position C (V/m)**	**Position D (V/m)**	**Position E (V/m)**	**Limit Test (V/m)**
110-148	1.12	1.39	1.08	1.26	2.12	614

H-field strengths at 15 cm surrounding the device and 20 cm above the top surface

Frequency Range (kHz)	**Position A (A/m)**	**Position B (A/m)**	**Position C (A/m)**	**Position D (A/m)**	**Position E (A/m)**	**Limit Test (A/m)**
110-148	0.292	0.327	0.289	0.311	0.483	1.63

Note:

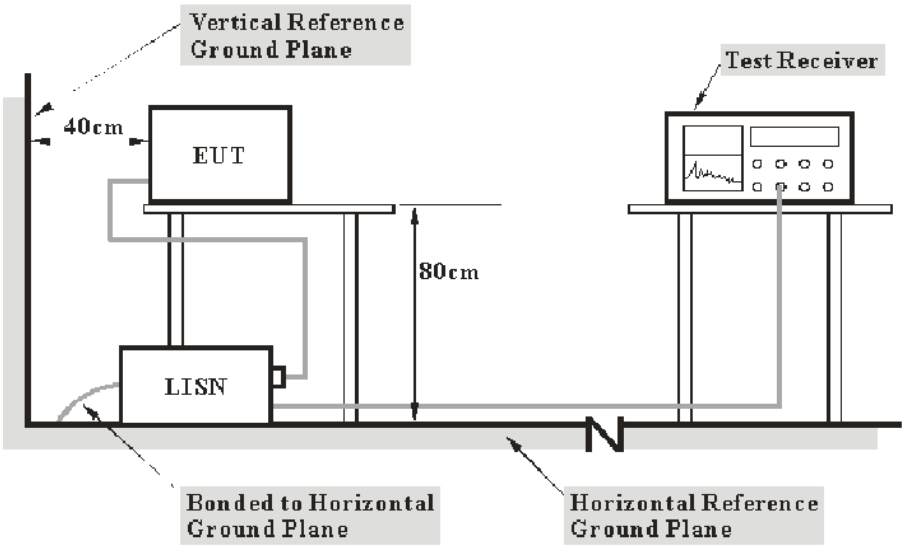
According with KDB 680106 D01 RF Exposure Wireless Charging Apps v03, Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614V/m and 1.63 A/m.

FCC §15.207 – AC LINE CONDUCTED EMISSION

Applicable Standard

FCC §15.207

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

According FCC publication number 174176,for a device with a permanent antenna operating at or below 30 MHz, the measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band; (2) retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$

Herein,
V_C: corrected voltage amplitude
V_R: reading voltage amplitude

A_c: attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data

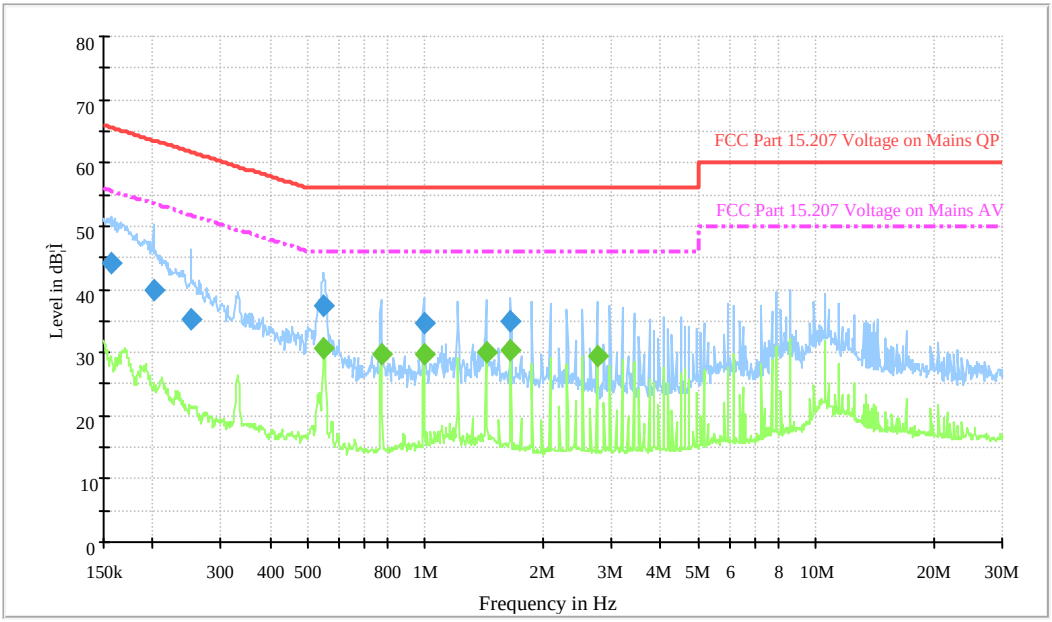
Environmental Conditions

Temperature:	22 °C
Relative Humidity:	56 %
ATM Pressure:	95.6 kPa

The testing was performed by Lorin Bian on 2018-04-26.

Test mode: Charging and communication

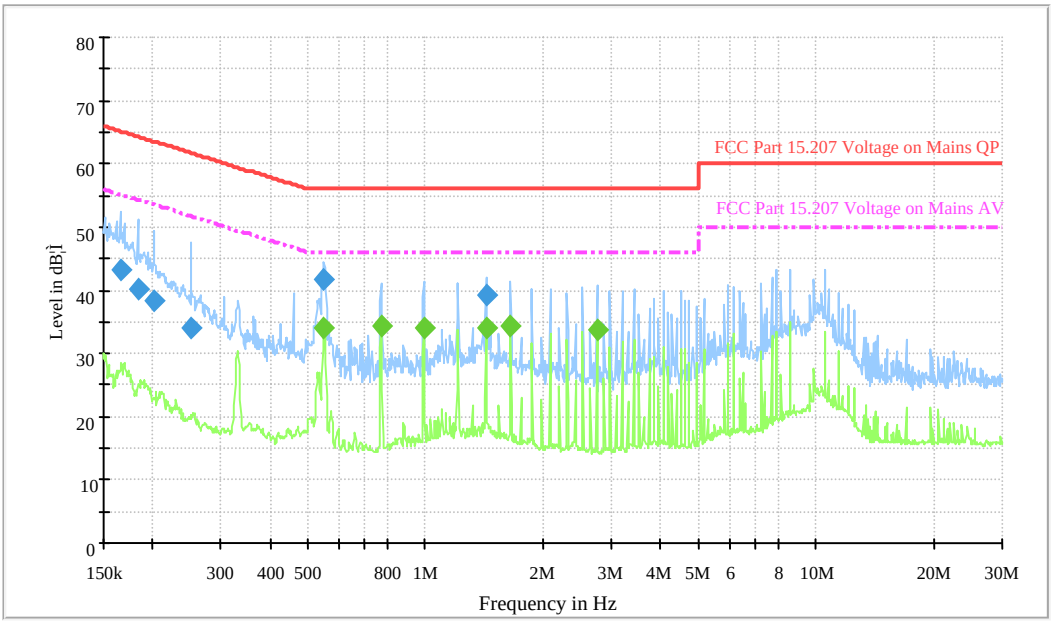
AC120V/60Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Margin (dB)	Limit (dBµV)
0.157361	44.3	200.0	9.000	L1	19.6	21.3	65.6
0.201552	39.9	200.0	9.000	L1	19.7	23.6	63.5
0.251039	35.4	200.0	9.000	L1	19.7	26.3	61.7
0.548969	37.5	200.0	9.000	L1	19.8	18.5	56.0
0.991146	34.6	200.0	9.000	L1	19.8	21.4	56.0
1.652163	34.9	200.0	9.000	L1	19.8	21.1	56.0

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Margin (dB)	Limit (dBµV)
0.551165	30.6	200.0	9.000	L1	19.8	15.4	46.0
0.770750	29.7	200.0	9.000	L1	19.7	16.3	46.0
0.991146	29.7	200.0	9.000	L1	19.8	16.3	46.0
1.430999	29.9	200.0	9.000	L1	19.8	16.1	46.0
1.652163	30.2	200.0	9.000	L1	19.8	15.8	46.0
2.754027	29.4	200.0	9.000	L1	19.9	16.6	46.0

AC120V/60Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Margin (dB)	Limit (dBµV)
0.165743	43.3	200.0	9.000	N	19.5	21.9	65.2
0.183870	40.2	200.0	9.000	N	19.5	24.1	64.3
0.202358	38.2	200.0	9.000	N	19.5	25.3	63.5
0.251039	33.9	200.0	9.000	N	19.5	27.8	61.7
0.551165	41.7	200.0	9.000	N	19.5	14.3	56.0
1.430999	39.4	200.0	9.000	N	19.5	16.6	56.0

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Margin (dB)	Limit (dBµV)
0.551165	33.9	200.0	9.000	N	19.5	12.1	46.0
0.770750	34.2	200.0	9.000	N	19.5	11.8	46.0
0.991146	34.1	200.0	9.000	N	19.5	11.9	46.0
1.430999	34.1	200.0	9.000	N	19.5	11.9	46.0
1.652163	34.4	200.0	9.000	N	19.5	11.6	46.0
2.754027	33.6	200.0	9.000	N	19.6	12.4	46.0

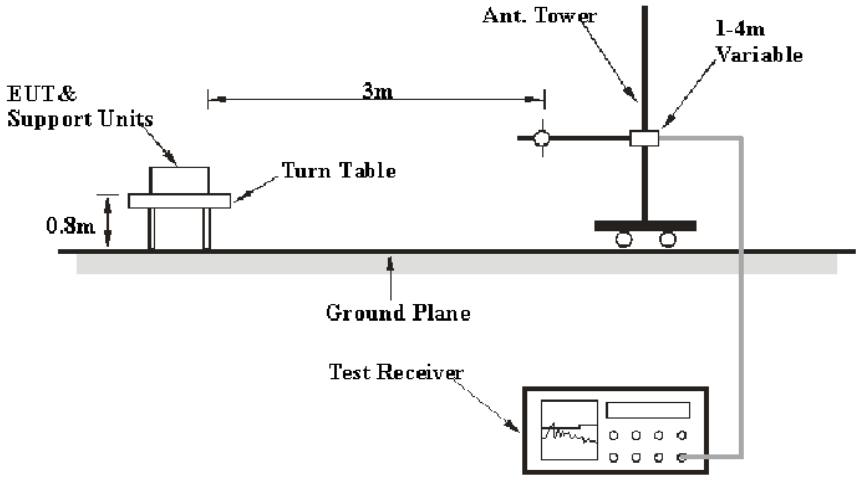
Note:
1) Corrected Amplitude = Reading + Correction Factor
2) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter
3) Margin = Limit – Corrected Amplitude

FCC §15.205 & §15.209 - FIELD STRENGTH AND RADIATED EMISSIONS

Applicable Standard

FCC§15.205, §15.209

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to 120VAC/60Hz power source.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 1 GHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	Measurement
9 kHz – 150 kHz	200 Hz	1 kHz	QP
150 kHz – 30 MHz	9 kHz	30 kHz	QP
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

Note: The frequency bands 9-90 kHz and 110-490 kHz, the testing is based on average detector.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor+ Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit - Corrected Amplitude.

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209.

Test Data

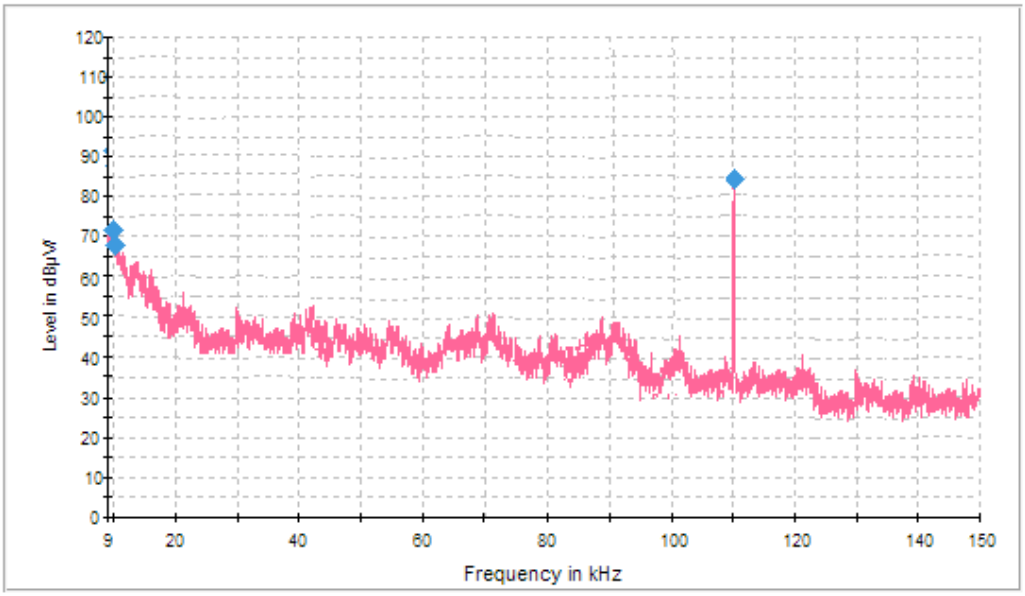
Environmental Conditions

Temperature:	26 °C
Relative Humidity:	44 %
ATM Pressure:	95.7 kPa

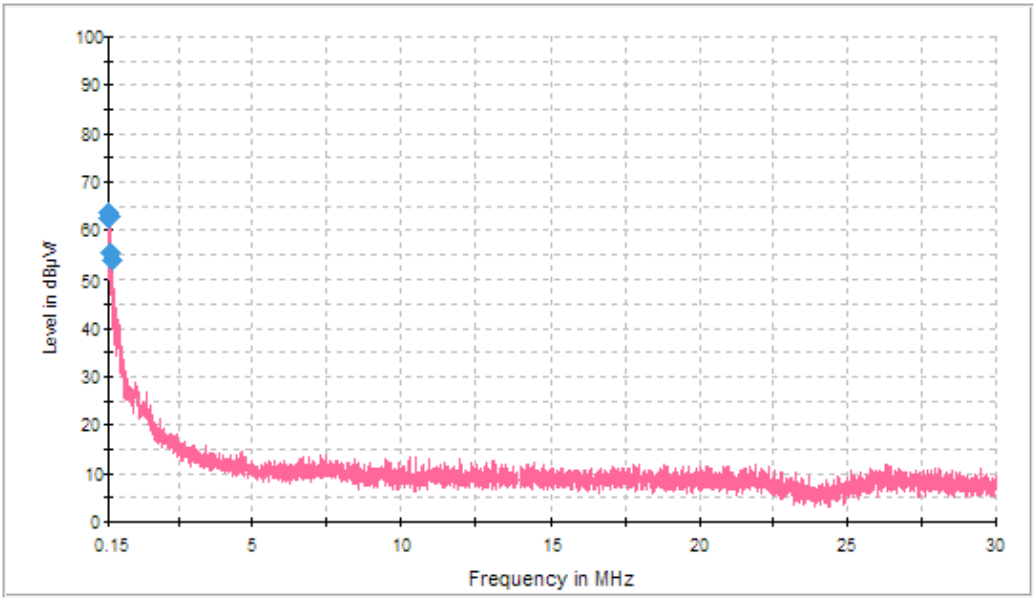
** The testing was performed by Lorin Bian on 2018-04-27.*

Test mode: Charging and communication

1) 9kHz-150 kHz



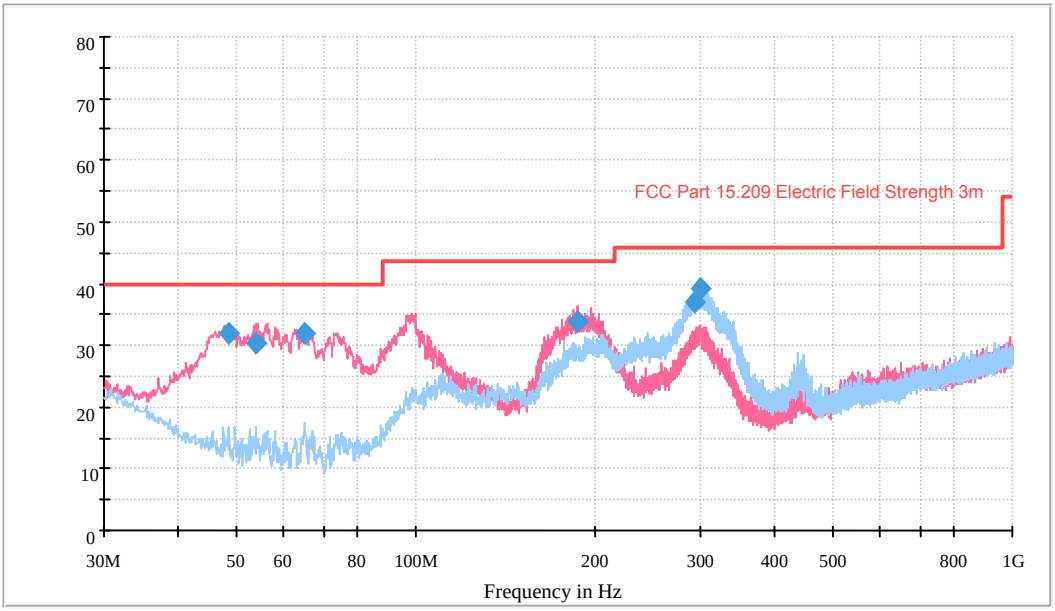
2) 150kHz-30 MHz



Frequency	Receiver		Rx Antenna	Cable Loss	Amplifier Gain	Corrected Amplitude	Limit	Margin
	Reading	Detector	Factor					
MHz	dBµV	PK/QP/AV	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dB
0.0092	13.59	AV	88.20	0.02	31.22	70.59	128.33	57.74
0.0098	9.22	AV	88.04	0.02	31.21	66.07	127.78	61.71
0.1102*	51.17	AV	64.79	0.05	31.38	84.63	106.76	22.13
0.1612	28.66	AV	62.95	0.06	31.35	60.32	103.46	43.14
0.1985	26.45	AV	61.03	0.06	31.32	56.22	101.65	45.43
0.2321	20.91	AV	59.30	0.06	31.29	48.98	100.29	51.31
0.2470	19.94	AV	58.53	0.06	31.26	47.27	99.75	52.48

Note:
1. "*" Means Fundamental frequency.
2. Corrected Amplitude (dBµV/m) = Reading (dBµV) + Ant. Factor (dB/m) + Cable Loss (dB)-Amplifier Gain(dB)
3. Margin [dB] = Limit (dBµV/m) - Corrected Amplitude
4. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz;
   Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz up to 30 MHz;
5. According to §15.209 (d), the measurements were tested by using Quasi peak detector except for the frequency bands 9 – 90 kHz, 110 – 490 kHz and above 1 GHz in these three bands on measurements employing an average detector.

3) 30 MHz-1GHz:



Frequency (MHz)	Quasi Peak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corrected Factor (dB/m)	Margin (dB)	Limit (dBµV/m)
48.430000	31.8	200.0	120.000	100.0	V	245.0	-16.1	8.2	40.0
54.007500	30.4	200.0	120.000	110.0	V	267.0	-17.4	9.6	40.0
65.041250	32.0	200.0	120.000	107.0	V	267.0	-17.0	8.0	40.0
187.018750	33.7	200.0	120.000	100.0	V	0.0	-13.5	9.8	43.5
292.870000	37.1	200.0	120.000	127.0	H	285.0	-10.8	8.9	46.0
300.751250	39.1	200.0	120.000	135.0	H	255.0	-10.5	6.9	46.0

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Margin = Limit- Corr. Amplitude

*******END OF REPORT*******