

FCC PART 15C TEST REPORT

For

Dongguan Xing Yue Electronic co., Ltd

#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan City,
Guang Dong, China

FCC ID: 2ALCFXO-9489

Report Type: Original Report	Product Type: Stir Magnetic Wireless Phone Mount
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Report Number: RSHA180124002-00A	
Report Date: 2018-02-08	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Dongguan Xing Yue Electronic co., Ltd
Tested Model	XO-9489
Product Type	Stir Magnetic Wireless Phone Mount
Dimension	64 mm(L)×64 mm(W)×74 mm(H)
Power Supply	DC 5V from USB Port

**All measurement and test data in this report was gathered from production sample serial number: 20180124002. (Assigned by BACL, Kunshan). The EUT was received on 2018-01-24.*

Objective

This report is prepared on behalf of Dongguan Xing Yue Electronic co., Ltd in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207 and 15.209 rules.

Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s).

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 at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19 dB
Radiated emission	9kHz~30MHz	3.19dB
	30MHz~1GHz	6.11dB
Temperature		1.0°C
Humidity		6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

No Exercise Software was used.

Support Equipment List and Details

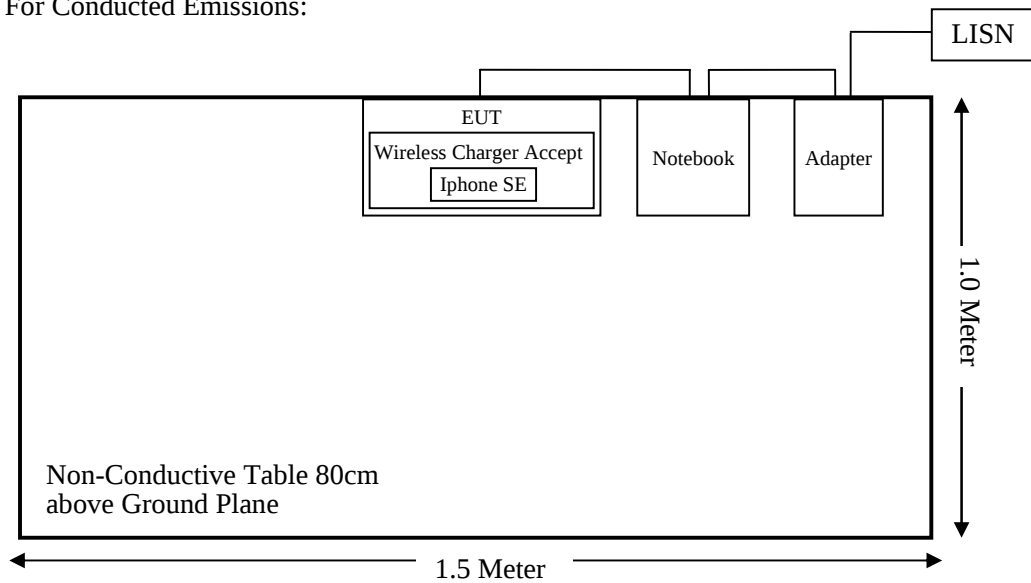
Manufacturer	Description	Model	Serial Number
DELL	Notebook	GX620	D65874152
DELL	Adapter	LA65NS0-00	DF263
Dongguan Xing Yue	Wireless Charger Accept	/	/
Apple Inc.	Iphone SE	A1723	355439073423692

External I/O Cable

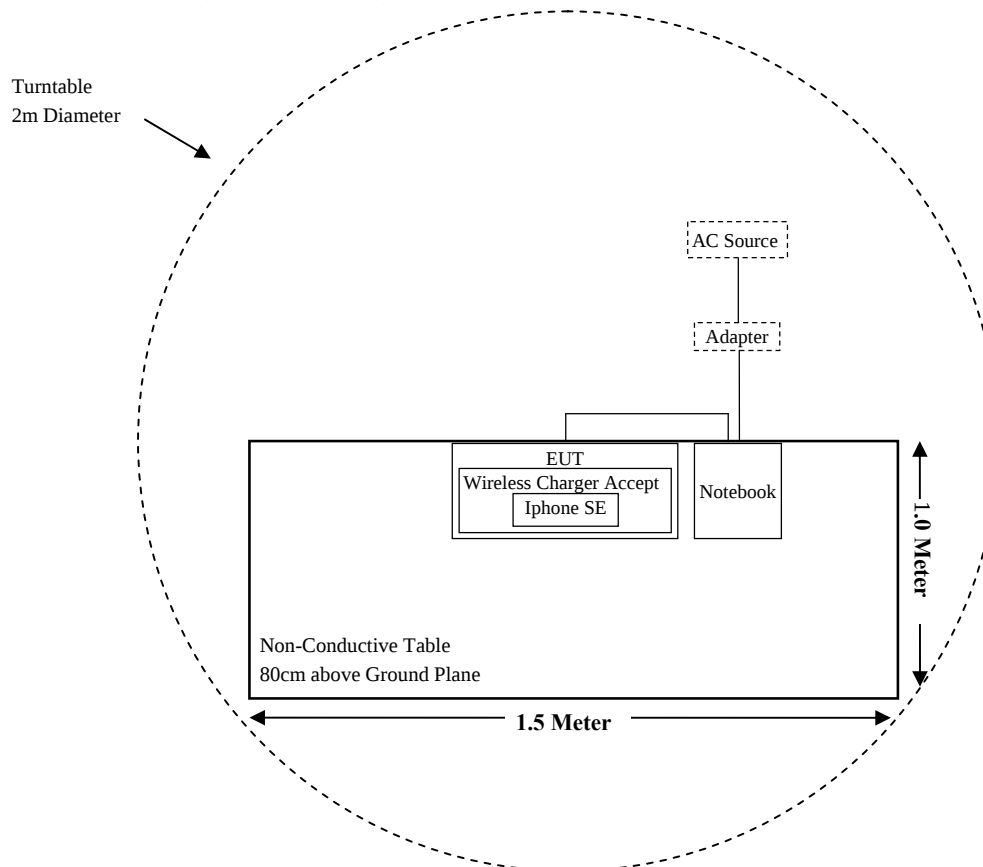
Cable Description	Shielding Type	Length (m)	From Port	To
USB Cable	Non-shielding	0.5	EUT	Notebook

Block Diagram of Test Setup

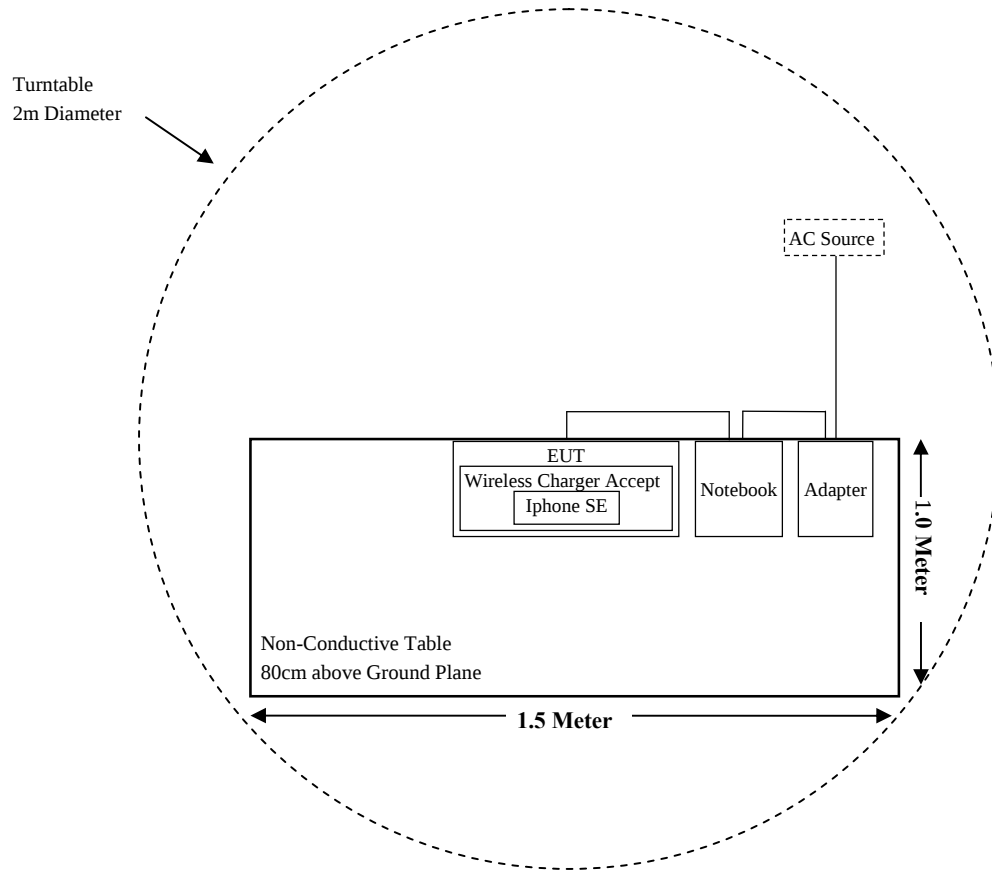
For Conducted Emissions:



For Radiated Emissions(Below 30MHz):



For Radiated Emissions(Above 30MHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 & §1.1310	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209	Spurious Emissions	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-25	2018-11-24
ETS-LINDGREN	PASSIVE LOOP	6512	108100	2016-01-09	2019-01-08
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Sonoma Instrument	Pre-amplifier	310N	171205	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2017-08-15	2018-08-14
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2017-11-12	2018-11-11
BACL	Auto test Software	BACL-EMC	CE001	/	/
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2017-08-15	2018-08-14
RF Exposure					
Narda	Electromagnetic Field Meter	ELT-400	/	2017-11-17	2018-11-16
Narda	Electric field probe	EF0391	/	2017-11-17	2018-11-16
Narda	Magnetic field probe / sensor	HF3061	/	2017-11-17	2018-11-16

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307& §1.1310 – RF EXPOSURE

Applicable Standard

FCC §1.1307 & 1.1310

According to the item 5.2 of KDB 680106 D01 RF Exposure Wireless Charging Apps v02: Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF evaluation.

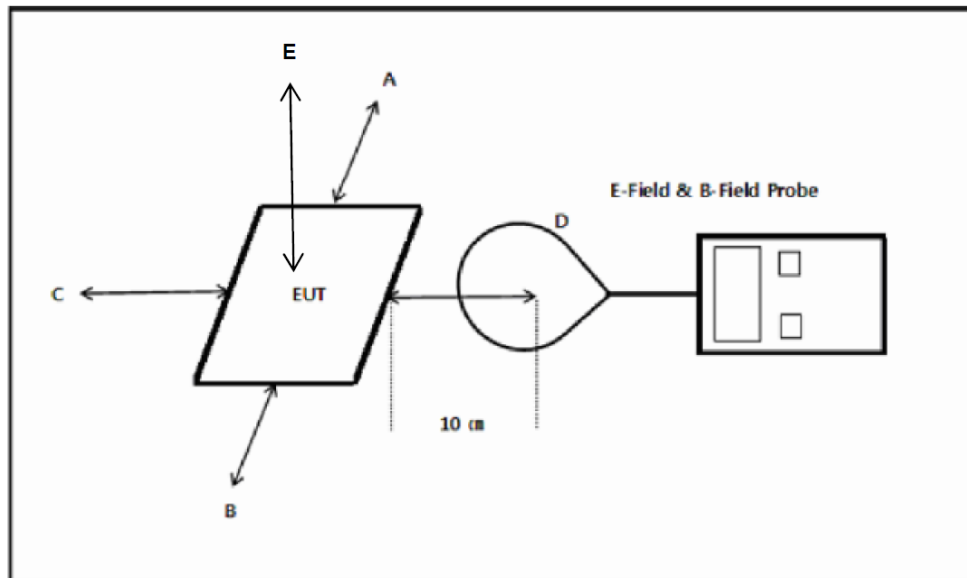
- a) Power transfer frequency is less than 1 MHz.
- b) Output power from each primary coil is less than 5 watts.
- c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
- d) Client device is inserted in or placed directly in contact with the transmitter.
- e) The maximum coupling surface area of the transmit (charging) device is between 60 cm² and 400 cm².
- f) Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure				
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
300-1500			f/1500	30
1500-100,000			1.0	30

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

EUT Setup



Result

a) Power transfer frequency is less than 1 MHz.

Yes, The device operates in the frequency 100kHz-200kHz.

b) Output power from each primary coil is less than 5 watts.

Yes, The maximum output power of the primary coil is 3.75W < 5W.

c) 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.

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

d) Client device is inserted in or placed directly in contact with the transmitter.

Yes, Client device is placed directly in contact with the transmitter.

e) The maximum coupling surface area of the transmit (charging) device is between 60 cm² and 400 cm².

No, The EUT Coupling surface area (Type: Circle)

$$\pi * R^2 = 3.14 * 2.25^2 = 15.9 \text{ cm}^2$$

f) Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

The EUT E-field Strength at 10cm & The EUT H-field Strength levels at 10cm are less than 30% the MPE limit.

Test Data**Environmental Conditions**

Temperature:	24.2°C
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

The testing was performed by Chris Wang on 2018-02-11.

E-Filed Strength(10 cm)

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)	Margin Limit
100-200	1.80	1.86	2.13	1.75	6.50	614	1.06%

H-Filed Strength(10 cm)

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)	Margin Limit
100-200	0.268	0.267	0.302	0.266	0.393	1.63	24.11%

Note: According with KDB 680106 D01 RF Exposure Wireless Charging Apps v02, 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. Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

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 Connector Construction

The EUT has a loop antenna arrangement, which the antenna gain is 0dBi, fulfill the requirement of this section. Please refer to the EUT photos.

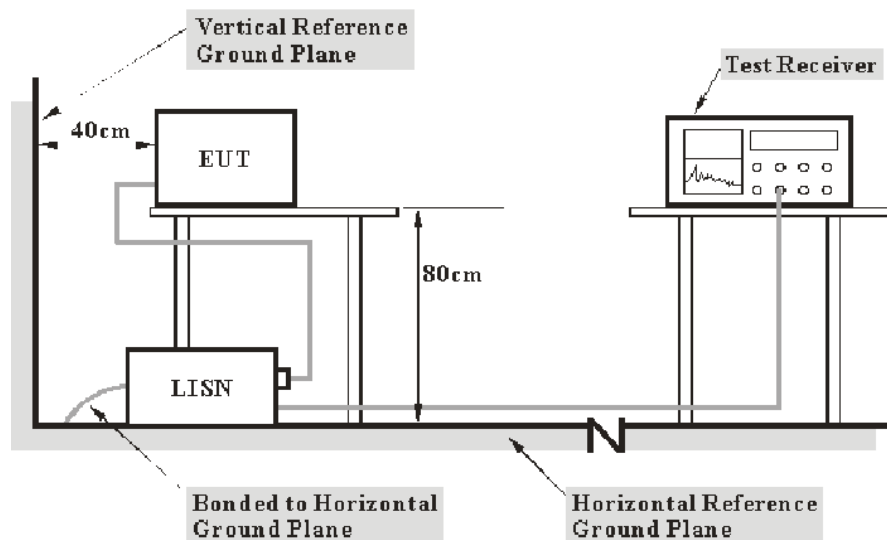
Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

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 30 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.

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.

Corrected Factor & Margin Calculation

The Corrected Factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Corrected Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

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

$$\text{Margin} = \text{Limit} - \text{Reading}$$

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:	24.2°C
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

The testing was performed by Chris Wang on 2018-01-25.

EUT operation mode: charging and communication

AC 120V/60 Hz, Line



Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.170	55.81	QP	9.000	L1	16.04	65.43	9.62	Compliance
0.170	37.90	AV	9.000	L1	16.04	55.43	17.53	Compliance
0.675	37.60	QP	9.000	L1	15.97	56.00	18.40	Compliance
0.675	31.34	AV	9.000	L1	15.97	46.00	14.66	Compliance
2.050	42.25	QP	9.000	L1	15.85	56.00	13.75	Compliance
2.050	37.58	AV	9.000	L1	15.85	46.00	8.42	Compliance
5.900	39.31	QP	9.000	L1	15.91	60.00	20.69	Compliance
5.900	35.60	AV	9.000	L1	15.91	50.00	14.40	Compliance
13.000	40.20	QP	9.000	L1	16.15	60.00	19.80	Compliance
13.000	37.54	AV	9.000	L1	16.15	50.00	12.46	Compliance
29.150	46.43	QP	9.000	L1	16.57	60.00	13.57	Compliance
29.150	36.64	AV	9.000	L1	16.57	50.00	13.36	Compliance

AC 120V/60 Hz, Neutral



Frequency (MHz)	Reading (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	46.65	QP	9.000	N	16.06	66.00	19.35	Compliance
0.150	34.30	AV	9.000	N	16.06	56.00	21.70	Compliance
0.670	41.75	QP	9.000	N	16.01	56.00	14.25	Compliance
0.670	34.00	AV	9.000	N	16.01	46.00	12.00	Compliance
2.200	39.07	QP	9.000	N	15.91	56.00	16.93	Compliance
2.200	32.98	AV	9.000	N	15.91	46.00	13.02	Compliance
5.100	41.13	QP	9.000	N	15.87	60.00	18.87	Compliance
5.100	36.22	AV	9.000	N	15.87	50.00	13.78	Compliance
10.200	43.80	QP	9.000	N	15.99	60.00	16.20	Compliance
10.200	39.89	AV	9.000	N	15.99	50.00	10.11	Compliance
27.050	49.87	QP	9.000	N	16.28	60.00	10.13	Compliance
27.050	38.55	AV	9.000	N	16.28	50.00	11.45	Compliance

Note:

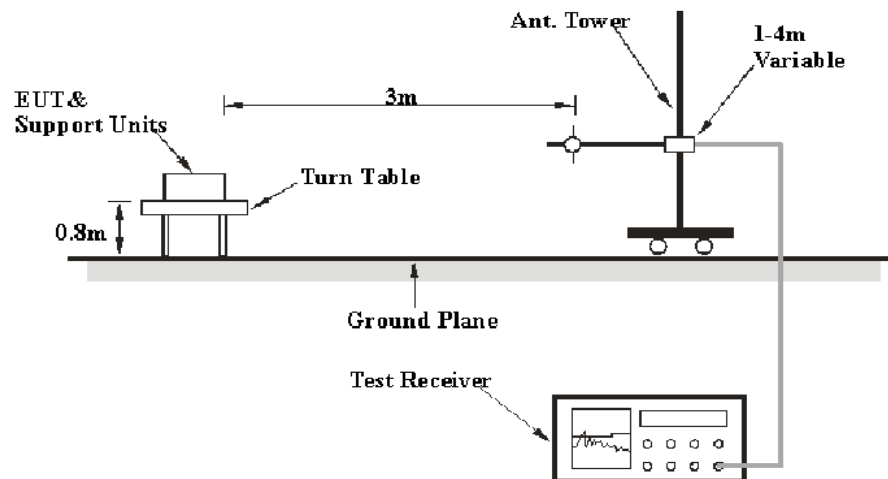
- 1) Corrected Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation
- 2) Margin = Limit – Reading

FCC §15.209 & §15.205 - SPURIOUS EMISSIONS

Applicable Standard

FCC §15.209; §15.205;

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.

EMI Test Receiver Setup

The system was investigated from 9kHz to 1GHz.

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

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

Note: For the frequency bands 9-90 kHz and 110-490 kHz, the test was 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 Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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 limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205 and 15.209.

Test Data

Environmental Conditions

Temperature:	24.2℃
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

The testing was performed by Chris Wang on 2018-01-30 .

EUT operation mode: charging and communication

9kHz-30MHz :

(Pre-scan in the X,Y and Z axes of orientation, the worst case **in X-axis of orientation** was recorded)

9kHz-490kHz:

Indicated		PK/QP/Ave.	Correction Factor			Corrected Amplitude (dBμV/m) @3m	FCC Part 15.209		
Frequency (kHz)	Maximum Reading (dBuV)		Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dBi)		Limit (dBμV/m) @3m	Limit (dBμV/m) @300m	Margin (dB)
35.4375	72.54	PK	74.99	0.32	32.0	115.85	136.61	56.61	20.76
35.4375	60.03	AV	74.99	0.32	32.0	103.34	116.61	36.61	13.27
95.9952	48.23	QP	66.78	0.32	32.0	83.33	107.96	27.96	24.63
480.1923	61.25	PK	52.84	0.32	32.0	82.41	113.98	33.98	31.57
480.1923	48.19	AV	52.84	0.32	32.0	69.35	93.98	13.98	24.63

490kHz-30MHz

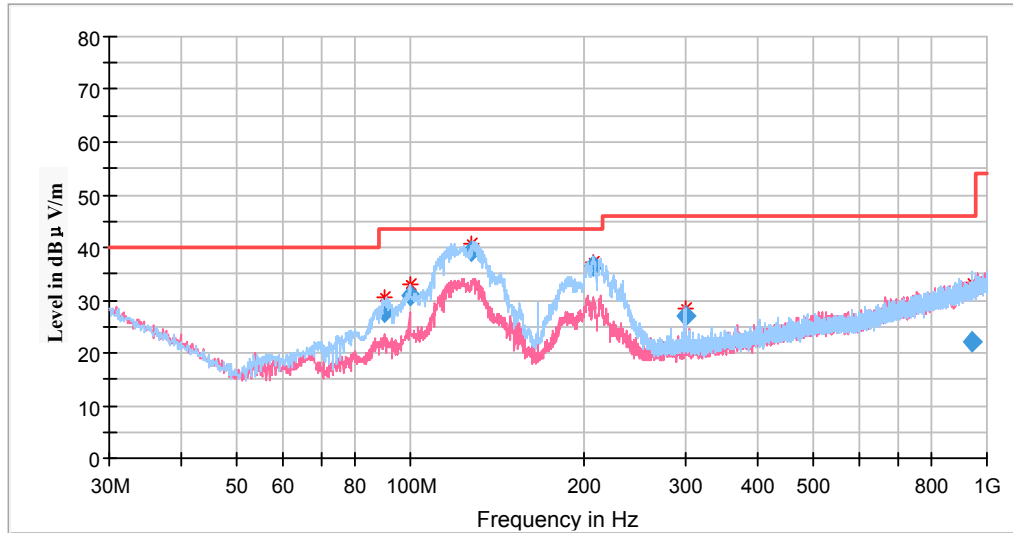
Indicated		PK/QP/Ave.	Correction Factor			Corrected Amplitude (dBμV/m) @3m	FCC Part 15.209		
Frequency (MHz)	Maximum Reading (dBuV)		Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dBi)		Limit (dBμV/m) @3m	Limit (dBμV/m) @30m	Margin (dB)
0.7851	34.30	QP	48.92	0.32	32.0	51.54	69.71	29.71	18.17
1.6948	31.38	QP	44.55	0.33	32.0	44.26	63.02	23.02	18.76
5.9206	44.58	QP	36.41	0.36	32.0	49.35	69.54	29.54	20.19
19.2855	52.61	QP	34.78	0.47	32.0	55.86	69.54	29.54	13.68

Note:

- Corrected Amplitude = Reading + Ant. Factor+ Cable Loss-Amplifier Gain
- Margin = Limit - Corrected Amplitude

30MHz-1GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **in X-axis of orientation** was recorded)



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	QuasiPeak (dB μ V/m)	Height (cm)	Polar (H/V)				
89.996350	27.66	198.0	H	128.0	-17.9	43.50	15.84
99.588260	30.87	198.0	H	136.0	-15.5	43.50	12.63
127.674830	39.29	198.0	H	346.0	-11.9	43.50	4.21
207.605130	36.55	198.0	H	321.0	-12.7	43.50	6.95
299.857210	26.90	198.0	V	167.0	-11.0	46.00	19.10
943.180080	22.04	198.0	H	305.0	1.1	46.00	23.96

Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit – Corrected. Amplitude

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