

# FCC TEST REPORT

For

QUEST USA CORP

Wireless Charger

Model No.: IJ-WRLS-CHR, IJC

Prepared For : QUEST USA CORP

Address : 495 Flatbush Ave, Brooklyn, NY 11225, USA

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

Address : 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

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Report Number : R0217060002W1

Date of Test : Jun. 05~ 30, 2017

Date of Report : Jun. 30, 2017

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## TEST REPORT

Applicant : QUEST USA CORP  
Manufacturer : China Etech Groups Ltd.  
Product Name : Wireless Charger  
Model No. : IJ-WRLS-CHR, IJC  
Trade Mark : IJOY  
Rating(s) : Input DC 5V, 1.5A, Output DC 5V, 0.5A

Test Standard(s) : FCC Part15 Subpart C 2016, Paragraph 15.209

Test Method(s) : ANSI C63.10: 2013

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Jun. 05~ 30, 2017

Prepared by :



*Winkey Wang*

(Tested Engineer / Winkey Wang)

Reviewer :

*Tangcy. T.*

(Project Manager / Tangcy. T)

Approved & Authorized Signer :

*Tom Chen*

(Manager / Tom Chen)

## 1. General Information

### 1.1. Client Information

Applicant	:	QUEST USA CORP
Address	:	495 Flatbush Ave, Brooklyn, NY 11225, USA
Manufacturer	:	China Etech Groups Ltd.
Address	:	Room 3A15, Floor 4, Block C, Bao Yuan Hua Feng Head Quarter economy building, Xixiang Road, Xixiang Street, Bao'an District, Shenzhen, China

### 1.2. Description of Device (EUT)

Product Name	:	Wireless Charger	
Model No.	:	IJ-WRLS-CHR, IJC (Note: All samples are the same except the model number and colour, outward appearance, so we prepare "IJ-WRLS-CHR" for test only.)	
Trade Mark	:	IJOY	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Product Description	:	Operation Frequency:	110~ 205kHz
		Modulation Type:	MSK
		Antenna Type:	Loop Antenna
		Antenna Gain(Peak):	0 dBi
<b>Remark:</b> 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

### 1.3. Auxiliary Equipment Used During Test

Mobile Phone	:	Model No.: NOKIA Lumia 920 Manufacturer: Windows Phone
Adapter	:	Manufacturer: Samsung M/N: ETA-U90CBC S/N: RT6FB17ZS/B-E Input: AC 100-240V, 50-60Hz, 0.35A Output: DC 5V, 2A

#### 1.4. Description of Test Modes

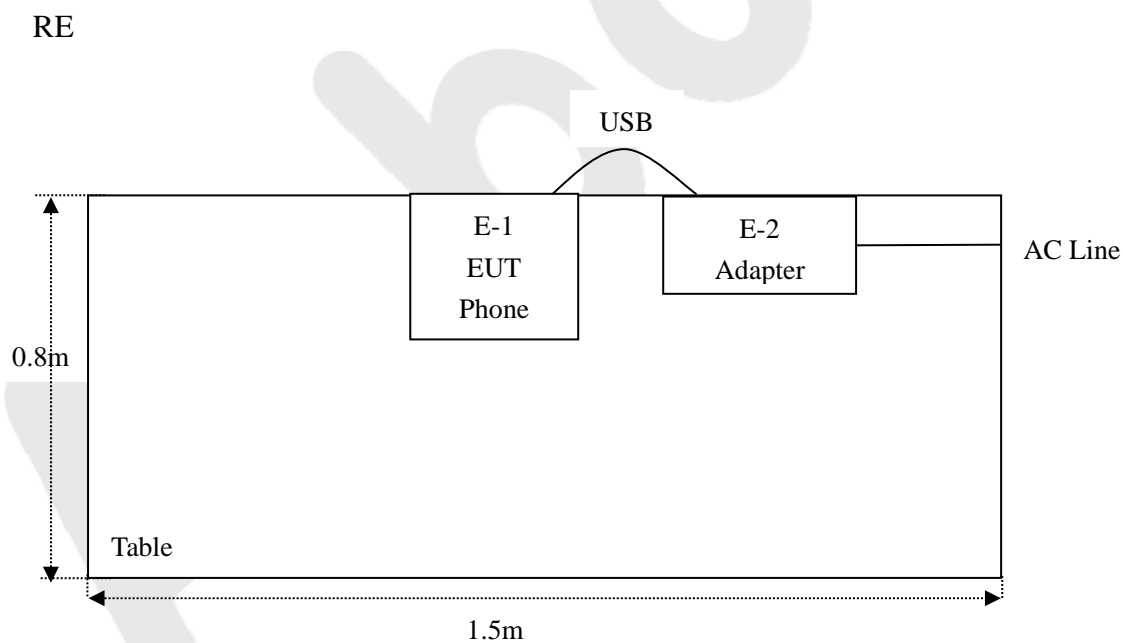
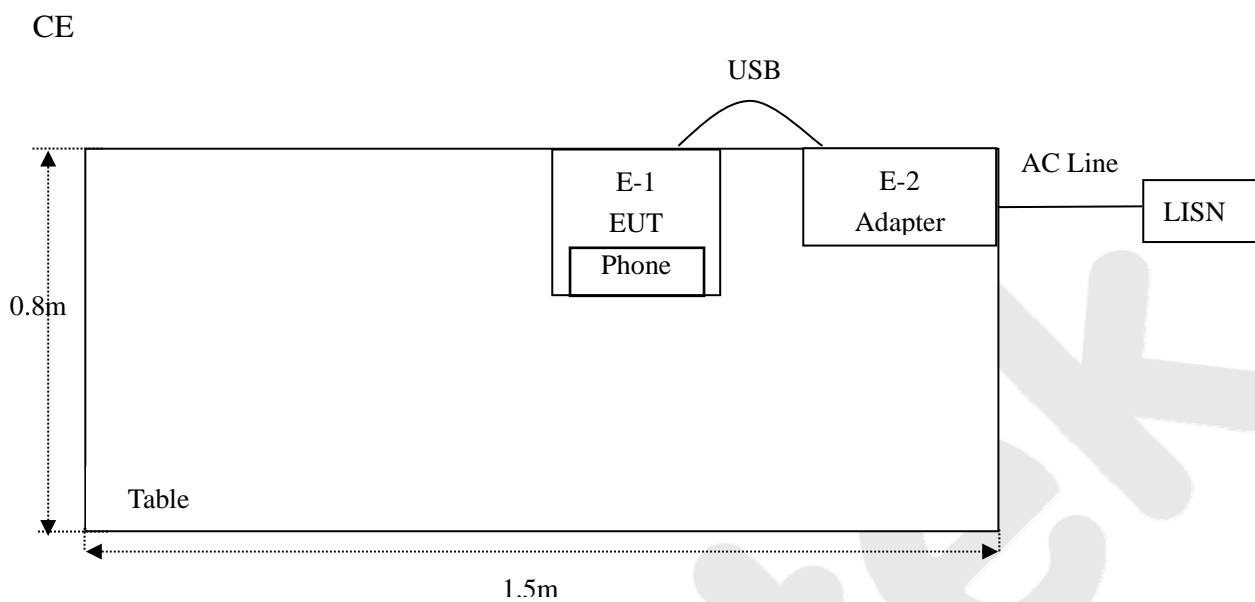
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	CH: Low
Mode 2	CH: Middle
Mode 3	CH: High
Mode 4	Keeping TX mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	Keeping TX mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH: Low
Mode 2	CH: Middle
Mode 3	CH: High

## 1.5. Description Of Test Setup



## 1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	May 27, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	May 27, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 27, 2017	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	May 27, 2017	1 Year
5.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	May 27, 2017	1 Year
6.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
9.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
11.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
13.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
14.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
17.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
18.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80 B	ZJ-17042804	Mar. 03, 2017	1 Year

### 1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal)
		Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

### 1.8. Description of Test Facility

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

#### FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, 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 No. 184111, July 31, 2017.

#### ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

#### Test Location

All Emissions tests were performed at  
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China



## 2. Summary of Test Results

Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS

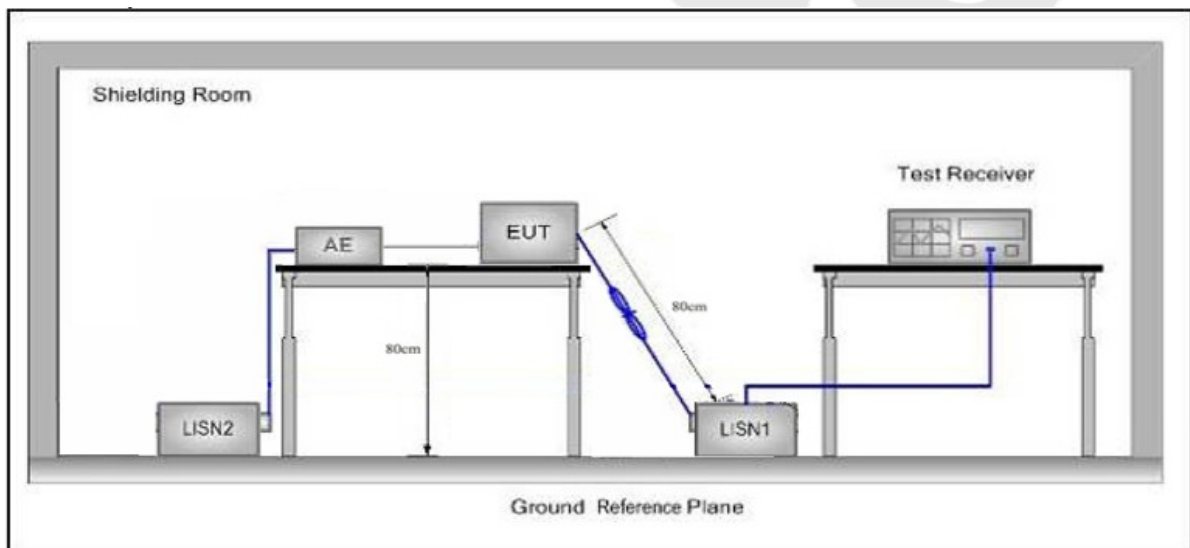
### 3. Conducted Emission Test

#### 3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50

**Remark:** (1) \*Decreasing linearly with logarithm of the frequency.  
(2) The lower limit shall apply at the transition frequency.

#### 3.2. Test Setup



#### 3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of 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 FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

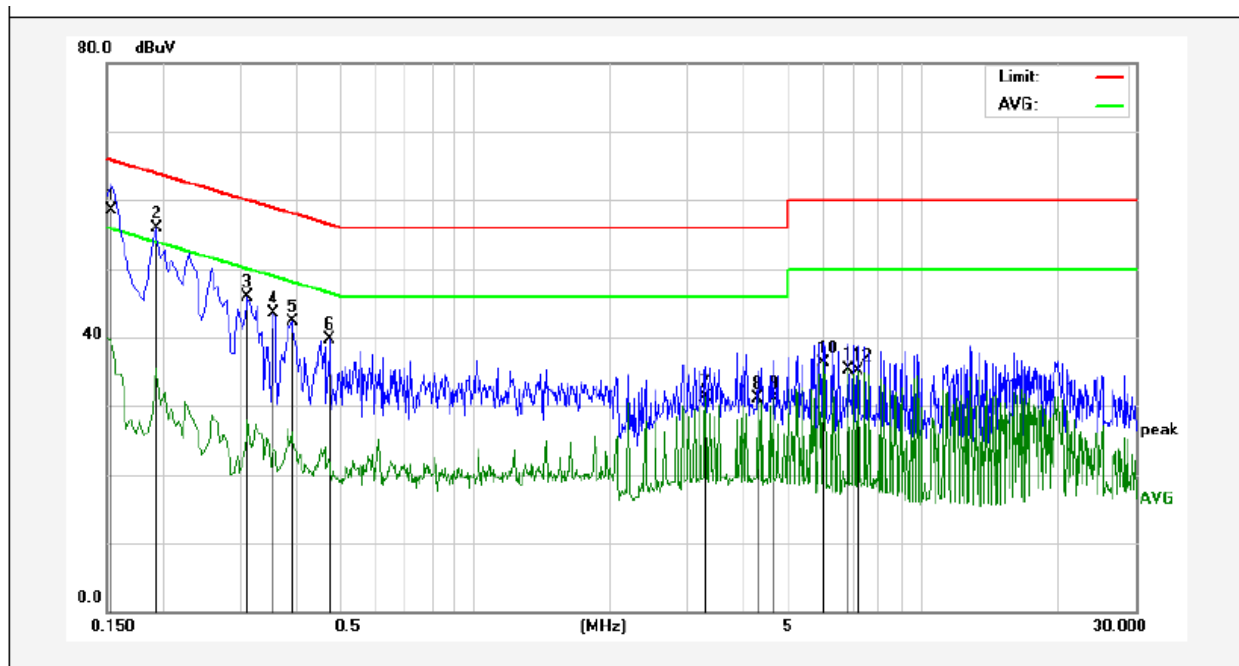
The frequency range from 150kHz to 30MHz is checked.

#### 3.4. Test Data

Please to see the following pages

## Conducted Emission Test Data

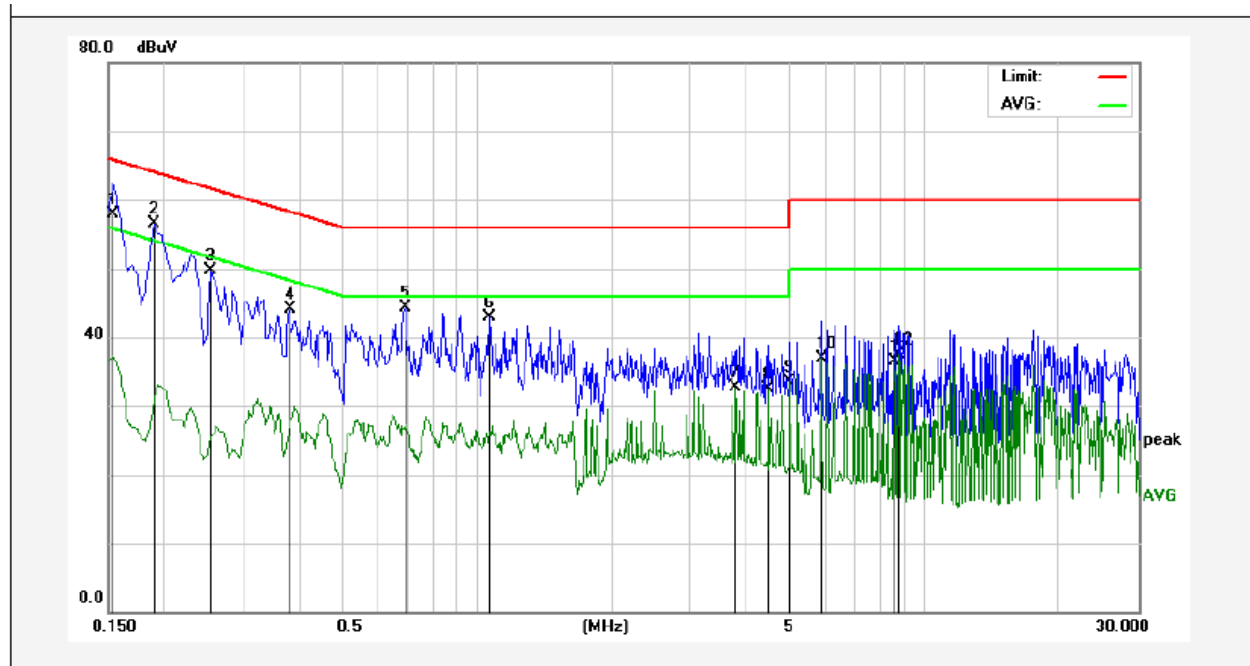
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Live Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	58.48	19.90	58.48	65.78	-7.30	QP	
2	0.1940	55.82	19.90	55.82	63.86	-8.04	QP	
3	0.3100	46.00	19.89	46.00	59.97	-13.97	QP	
4	0.3540	43.45	19.89	43.45	58.87	-15.42	QP	
5	0.3899	42.29	19.93	42.29	58.06	-15.77	QP	
6	0.4740	39.65	19.95	39.65	56.44	-16.79	QP	
7	3.2780	31.31	20.31	31.31	46.00	-14.69	AVG	
8	4.2900	31.19	20.32	31.19	46.00	-14.81	AVG	
9	4.6540	31.16	20.32	31.16	46.00	-14.84	AVG	
10	6.0220	36.33	20.33	36.33	50.00	-13.67	AVG	
11	6.8420	35.40	20.34	35.40	50.00	-14.60	AVG	
12	7.1820	35.03	20.33	35.03	50.00	-14.97	AVG	

### Conducted Emission Test Data

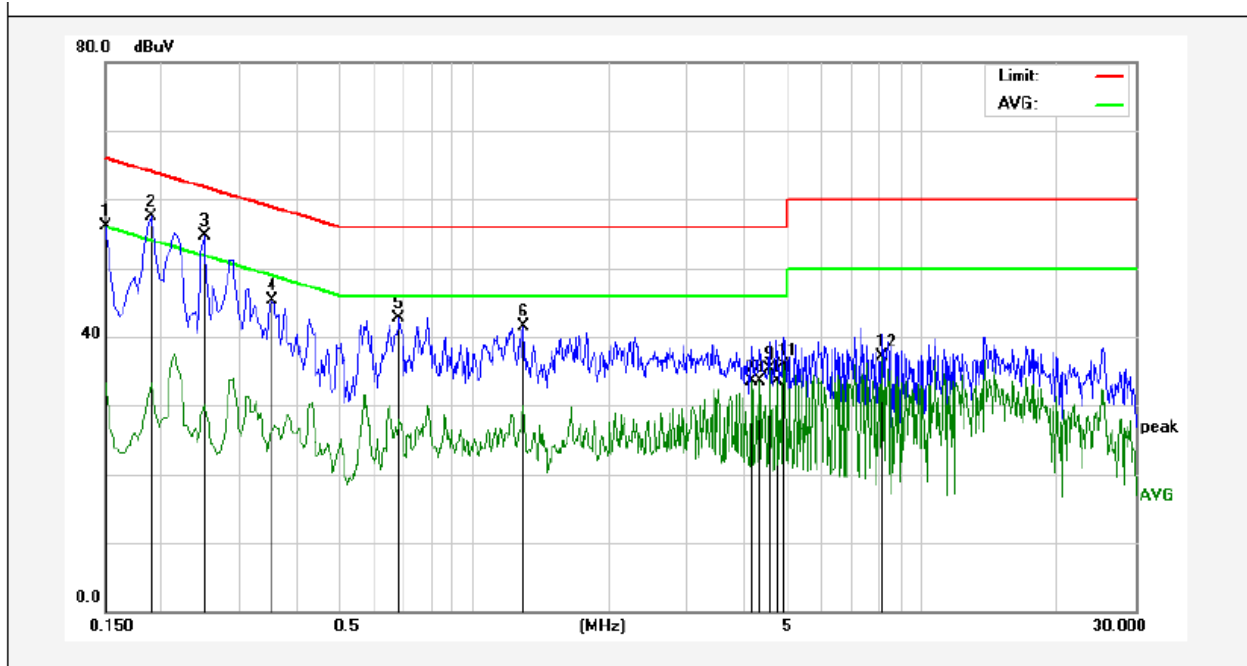
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 120V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	57.97	19.90	57.97	65.78	-7.81	QP	
2	0.1900	56.52	19.90	56.52	64.03	-7.51	QP	
3	0.2540	49.67	19.89	49.67	61.62	-11.95	QP	
4	0.3820	44.04	19.92	44.04	58.23	-14.19	QP	
5	0.6900	44.31	20.08	44.31	56.00	-11.69	QP	
6	1.0700	42.82	20.32	42.82	56.00	-13.18	QP	
7	3.7980	32.66	20.32	32.66	46.00	-13.34	AVG	
8	4.4940	32.44	20.31	32.44	46.00	-13.56	AVG	
9	4.9940	33.52	20.29	33.52	46.00	-12.48	AVG	
10	5.8859	36.86	20.29	36.86	50.00	-13.14	AVG	
11	8.5900	36.45	20.28	36.45	50.00	-13.55	AVG	
12	8.7580	37.42	20.28	37.42	50.00	-12.58	AVG	

## Conducted Emission Test Data

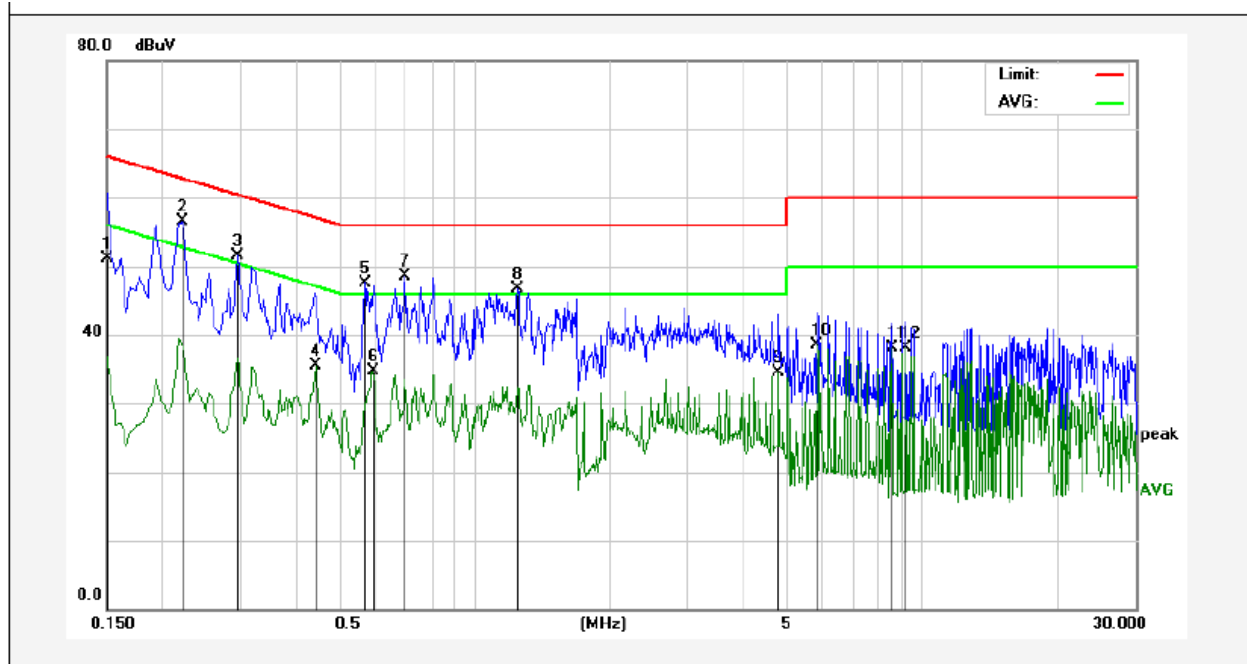
Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Live Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1499	56.11	19.90	56.11	66.00	-9.89	QP	
2	0.1900	57.53	19.89	57.53	64.03	-6.50	QP	
3	0.2500	54.61	19.89	54.61	61.75	-7.14	QP	
4	0.3540	45.25	20.05	45.25	58.87	-13.62	QP	
5	0.6820	42.72	20.13	42.72	56.00	-13.28	QP	
6	1.2900	41.51	20.13	41.51	56.00	-14.49	QP	
7	4.1779	33.46	20.30	33.46	46.00	-12.54	AVG	
8	4.3578	33.45	20.32	33.45	46.00	-12.55	AVG	
9	4.5658	35.40	20.30	35.40	46.00	-10.60	AVG	
10	4.7899	33.48	20.29	33.48	46.00	-12.52	AVG	
11	4.9139	35.96	20.28	35.96	46.00	-10.04	AVG	
12	8.1539	37.07	20.27	37.07	50.00	-12.93	AVG	

### Conducted Emission Test Data

Test Site: 1# Shielded Room  
Operating Condition: Keeping TX mode  
Test Specification: AC 240V, 60Hz for adapter  
Comment: Neutral Line  
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1500	51.05	19.90	51.05	65.99	-14.94	QP	
2	0.2220	56.47	19.90	56.47	62.74	-6.27	QP	
3	0.2940	51.49	19.90	51.49	60.41	-8.92	QP	
4	0.4420	35.46	19.89	35.46	47.02	-11.56	AVG	
5	0.5700	47.60	19.89	47.60	56.00	-8.40	QP	
6	0.5899	34.66	19.92	34.66	46.00	-11.34	AVG	
7	0.6980	48.59	19.93	48.59	56.00	-7.41	QP	
8	1.2460	46.72	19.98	46.72	56.00	-9.28	QP	
9	4.7859	34.55	20.31	34.55	46.00	-11.45	AVG	
10	5.8139	38.52	20.33	38.52	50.00	-11.48	AVG	
11	8.5859	38.17	20.31	38.17	50.00	-11.83	AVG	
12	9.2059	38.11	20.29	38.11	50.00	-11.89	AVG	

## 4. Radiation Spurious Emission and Band Edge

### 4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

**Remark:**

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

### 4.2. Test Setup

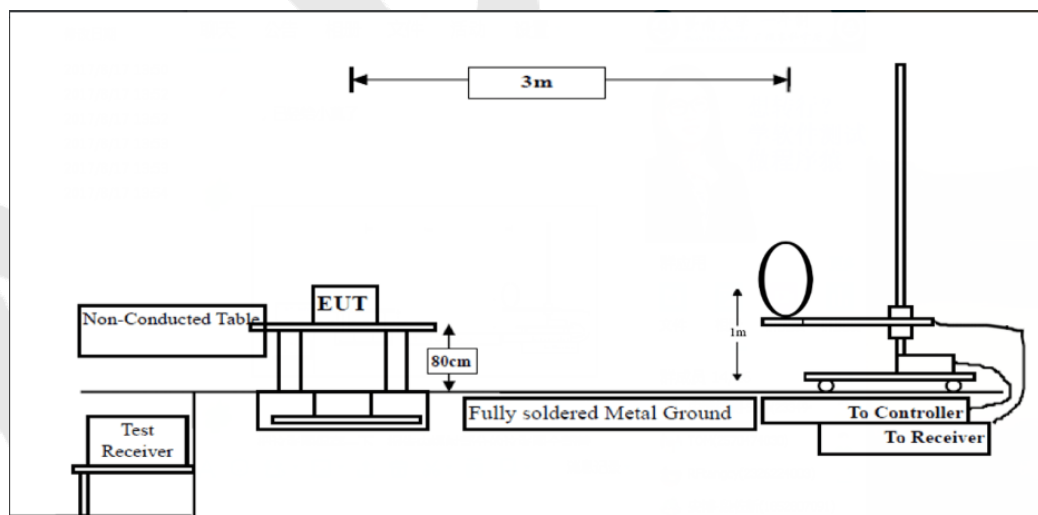


Figure 1. Below 30MHz

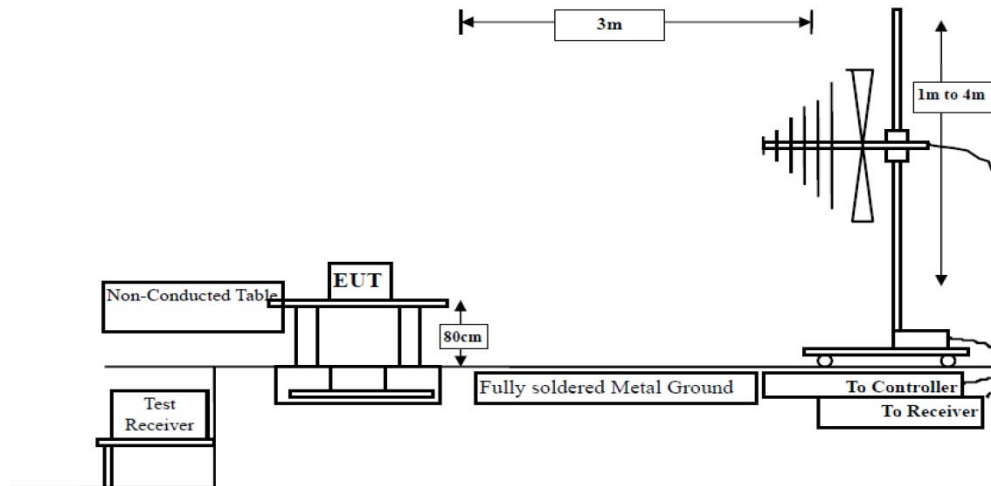


Figure 2. 30MHz to 1GHz

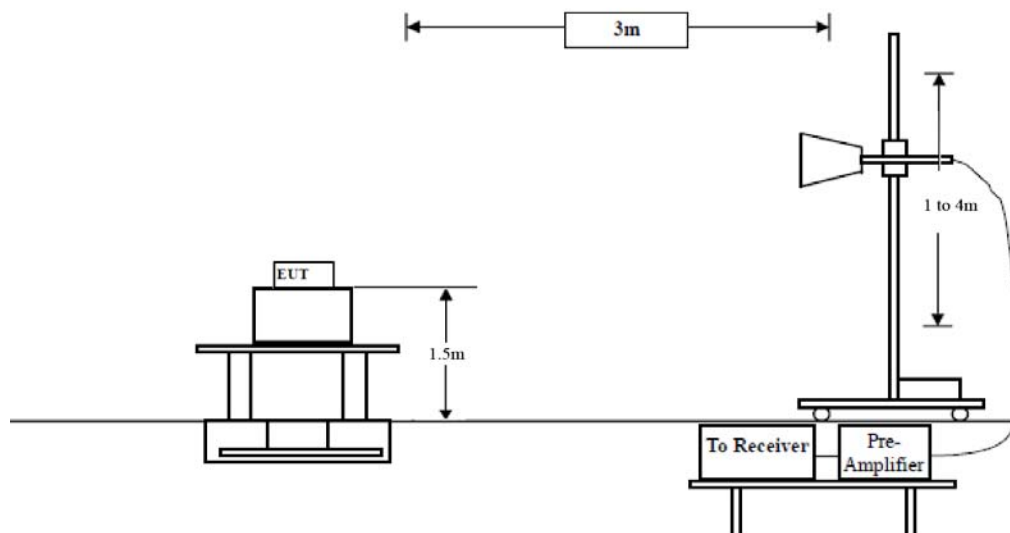


Figure 3. Above 1 GHz

### 4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The 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 from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9\*6\*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.



For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW = 300kHz, Detector = Quasi-Peak, Trace mode = Max hold, Sweep = auto couple.

#### 4.4. Test Data

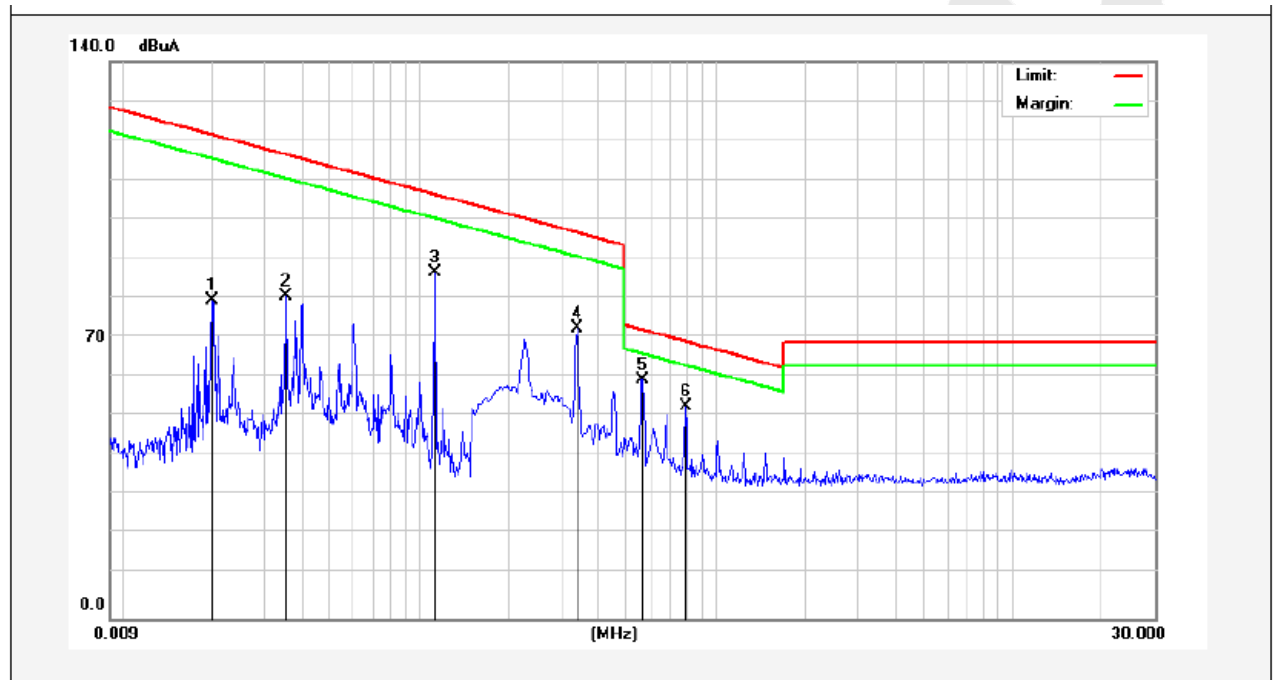
PASS

Anbotek

## Test Results

(Between 9KHz – 30MHz)

**Job No.:** 0217060002W  
**Standard:** FCC PART15 C \_3m  
**Power Source:** AC 120V, 60Hz for adapter  
**Test item:** Radiation Test  
**Temp.(C)/Hum.(%RH):** 24.4(C)/50%RH  
**Test Mode:** TX Mode  
**Distance:** 3m

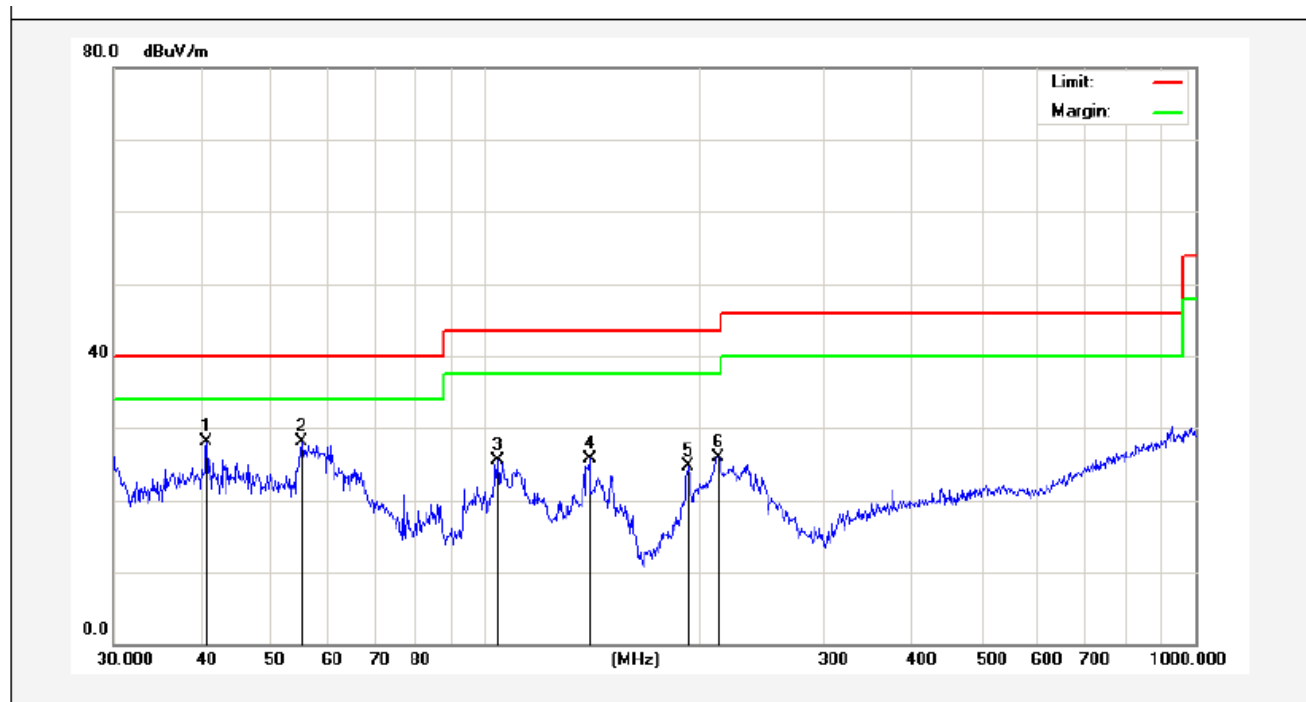


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0200	61.31	19.28	2.53	0	83.12	141.51	-58.39	Peak	10
0.0200	58.10	19.28	2.53	0	79.91	121.51	-41.60	AV	10
0.0355	61.17	19.28	2.53	0	82.98	136.54	-53.56	Peak	41
0.0355	59.10	19.28	2.53	0	80.91	116.54	-35.63	AV	41
0.1127	51.59	19.30	2.54	0	73.43	126.53	-53.10	Peak	114
0.1127	49.36	19.30	2.54	0	74.52	106.53	-32.01	AV	114
0.3379	54.31	19.38	2.55	0	76.24	117.02	-40.78	Peak	98
0.3379	51.07	19.38	2.55	0	73.00	97.02	-24.02	AV	98
0.5660	37.99	19.53	2.59	0	60.11	72.55	-12.44	QP	321
0.7900	30.51	20.34	2.60	0	53.45	69.65	-16.20	QP	360

**Remark:** According to FCC PART 15.209 (d), the emission limits for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, Radiated emission limits in these three bands are based on measurements employing an average detector.

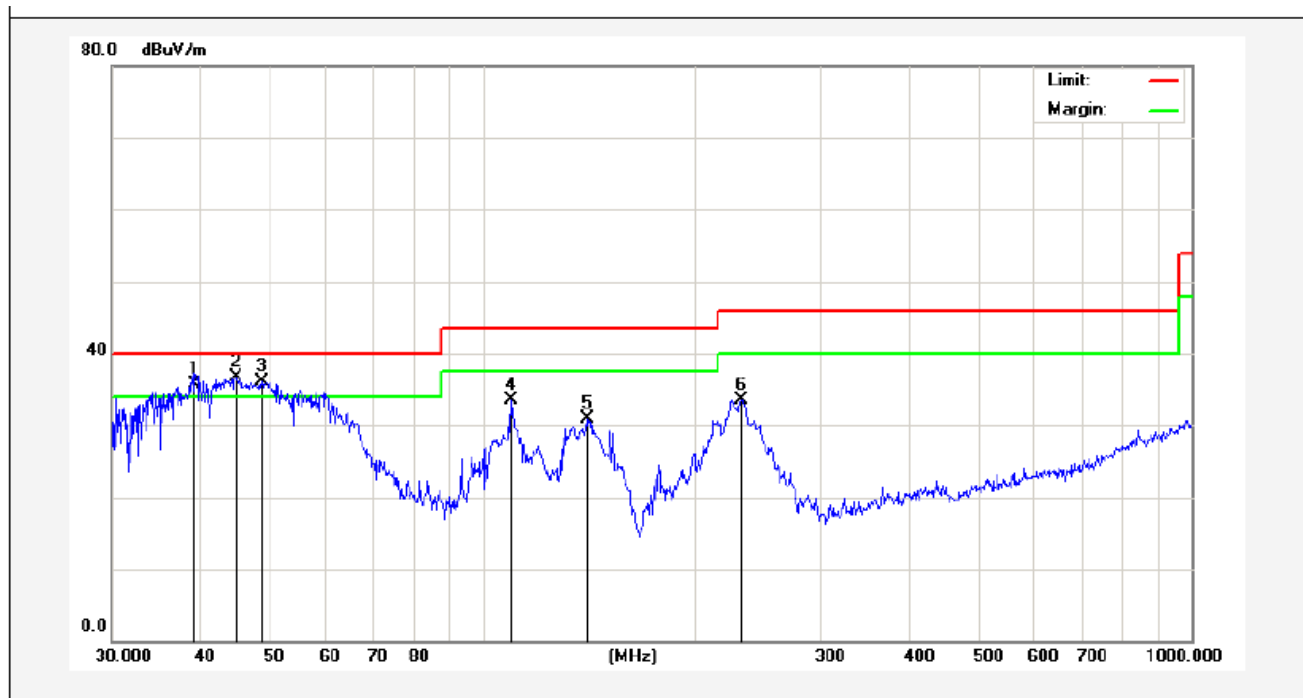
(Between 30MHz –1000 MHz)

Job No.:	0217060002W	Polarization:	Horizontal
Standard:	FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.4(C)/50%RH
Test Mode:	TX Mode	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	40.5591	39.07	-11.06	28.01	40.00	-11.99	QP	100	210	
2	55.2207	43.08	-14.94	28.14	40.00	-11.86	QP	100	240	
3	104.1701	46.14	-20.70	25.44	43.50	-18.06	QP	100	360	
4	140.3421	49.14	-23.48	25.66	43.50	-17.84	QP	100	150	
5	193.0945	45.61	-20.91	24.70	43.50	-18.80	QP	100	100	
6	213.0151	46.22	-20.37	25.85	43.50	-17.65	QP	100	120	

Job No.:	0217060002W	Plarization:	Vertical
Standard:	FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.4(C)/50%RH
Test Mode:	TX Mode	Distance:	3m



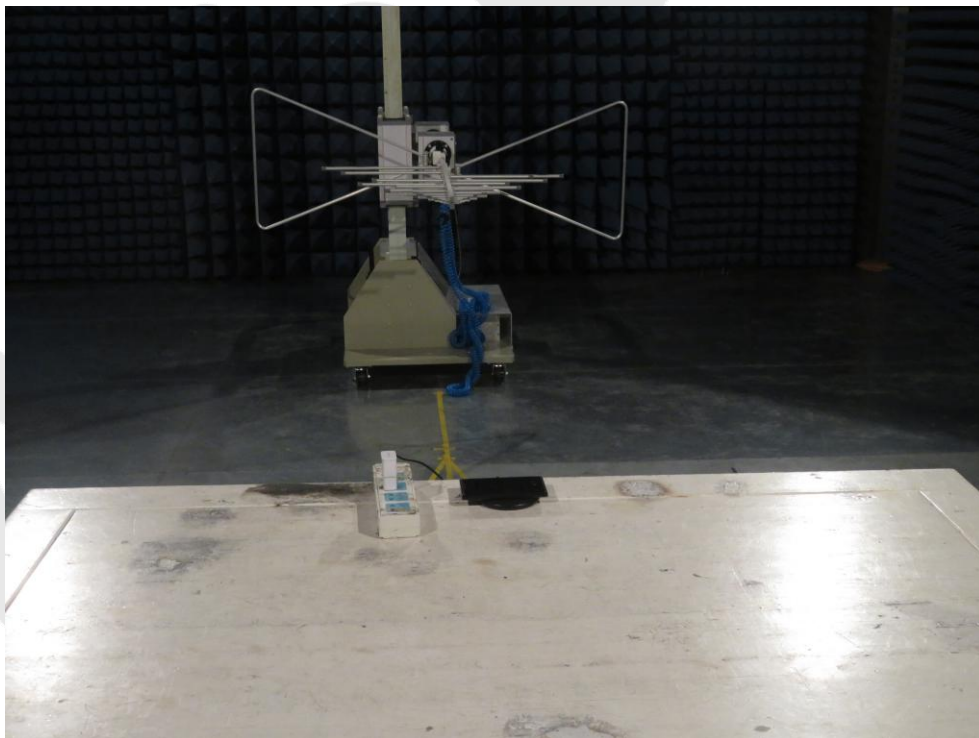
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	39.2991	47.18	-11.39	35.79	40.00	-4.21	QP	100	100	
2	44.9004	49.19	-12.55	36.64	40.00	-3.36	QP	100	250	
3	48.8429	50.31	-14.11	36.20	40.00	-3.80	QP	100	160	
4	109.7960	49.04	-15.62	33.42	43.50	-10.08	QP	100	300	
5	140.3420	49.38	-18.48	30.90	43.50	-12.60	QP	100	120	
6	231.7178	47.99	-14.51	33.48	46.00	-12.52	QP	100	230	

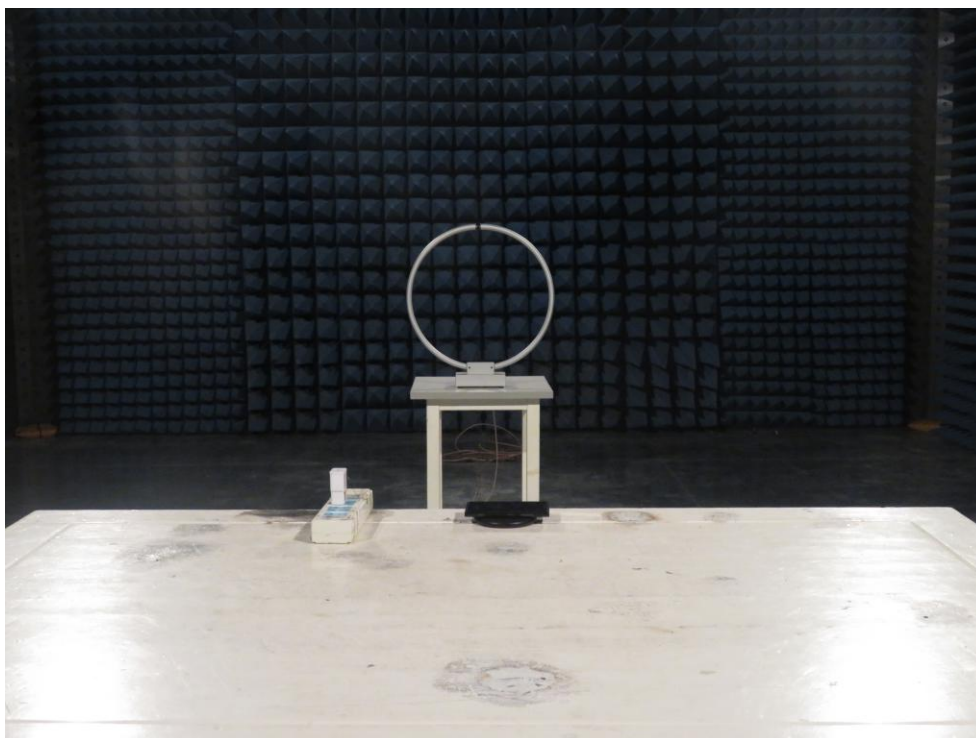
## APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement



Photo of Radiation Emission Test

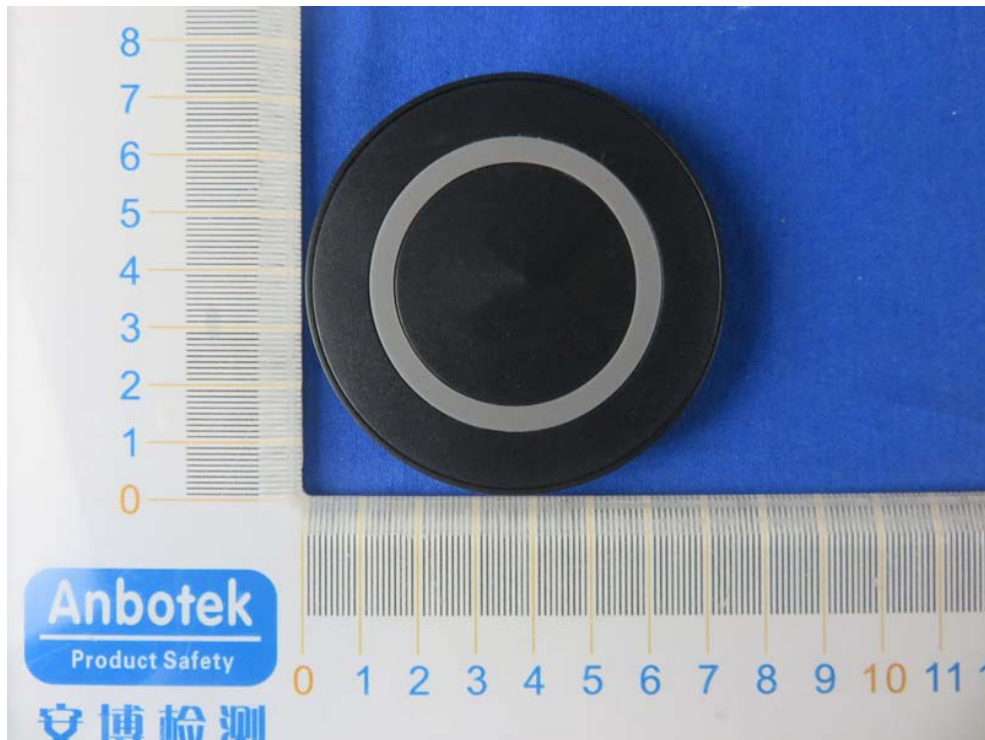






## APPENDIX II -- EXTERNAL PHOTOGRAPH











## APPENDIX III -- INTERNAL PHOTOGRAPH

