

FCC TEST REPORT

For

All Best Technology Limited

Bluetooth Speaker System with Alarm Clock Wireless Charging Station

Model No.: S1-qi, D2qi, D2-WC

Prepared For : All Best Technology Limited
Address : Yincheng 1st Rd., Yincheng Industrial Zone, Xiabian Village, Chang'an
Town, Dongguan City, Guangdong Province, China

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Report Number : SZAWW171225002-02
Date of Test : Dec. 25, 2017~Jan. 02, 2018
Date of Report : Jan. 02, 2018

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TEST REPORT

Applicant : All Best Technology Limited
Manufacturer : All Best Technology Limited
Product Name : Bluetooth Speaker System with Alarm Clock Wireless Charging Station
Model No. : S1-qi, D2qi, D2-WC
Trade Mark : N/A
Rating(s) : Input DC 5V, 3A Battery DC 3V, 200mAh inside(via adapter input:AC 100~240V,
50/60Hz, 0.4A; output:5V 3A)

Test Standard(s) : FCC Part15 Subpart C 2017, 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 : Dec. 25, 2017~Jan. 02, 2018

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	:	All Best Technology Limited
Address	:	Yincheng 1st Rd., Yincheng Industrial Zone, Xiabian Village, Chang'an Town, Dongguan City, Guangdong Province, China
Manufacturer	:	All Best Technology Limited
Address	:	Yincheng 1st Rd., Yincheng Industrial Zone, Xiabian Village, Chang'an Town, Dongguan City, Guangdong Province, China

1.2. Description of Device (EUT)

Product Name	:	Bluetooth Speaker System with Alarm Clock Wireless Charging Station	
Model No.	:	S1-qi, D2qi, D2-WC (Note: All samples are the same except the model number and colour, so we prepare "S1-qi" for test only.)	
Trade Mark	:	N/A	
Test Power Supply	:	AC 120V, 60Hz for adapter/AC 240V, 60Hz for adapter DC 3V Battery inside	
Product Description	:	Operation Frequency:	110-205KHz
		Number of Channel:	20 Channels
		Modulation Type:	MSK
		Antenna Type:	Loop Antenna
		Antenna Gain(Peak):	0 dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2) This report is for 110-205KHz modeul			

1.3. Auxiliary Equipment Used During Test

Adapter	:	M/N: CW0503000 Input: 100-240V~50/60Hz 0.4A Output: DC 5V, 3000mA
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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	CH01
Mode 2	CH10
Mode 3	CH20
Mode 4	TX + Charging Mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	TX + Charging Mode

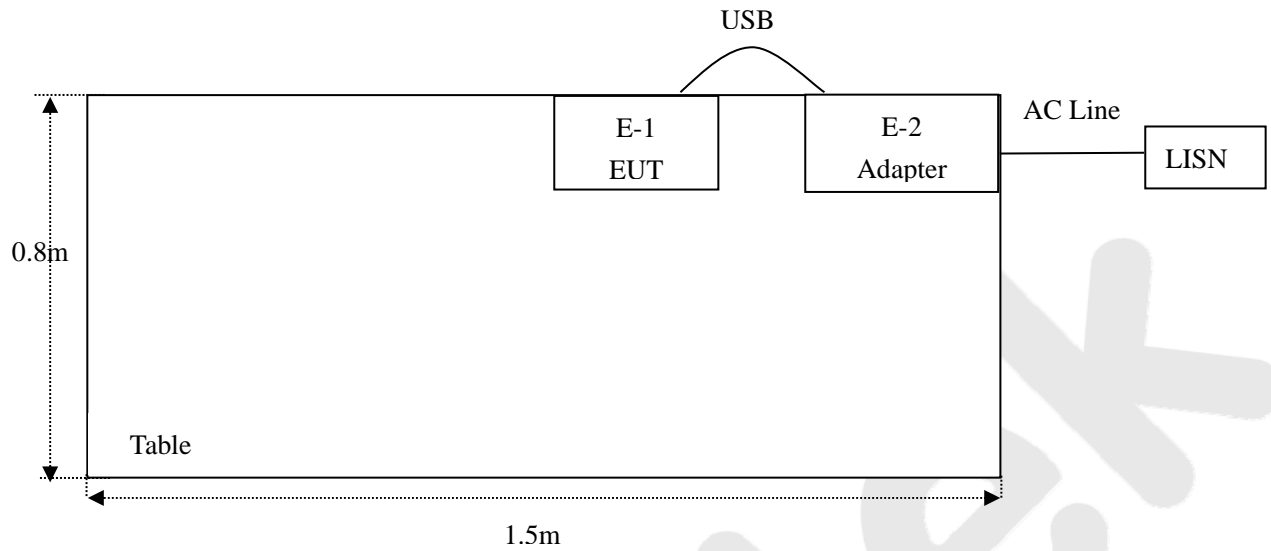
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH10
Mode 3	CH20

1.5. List of channels

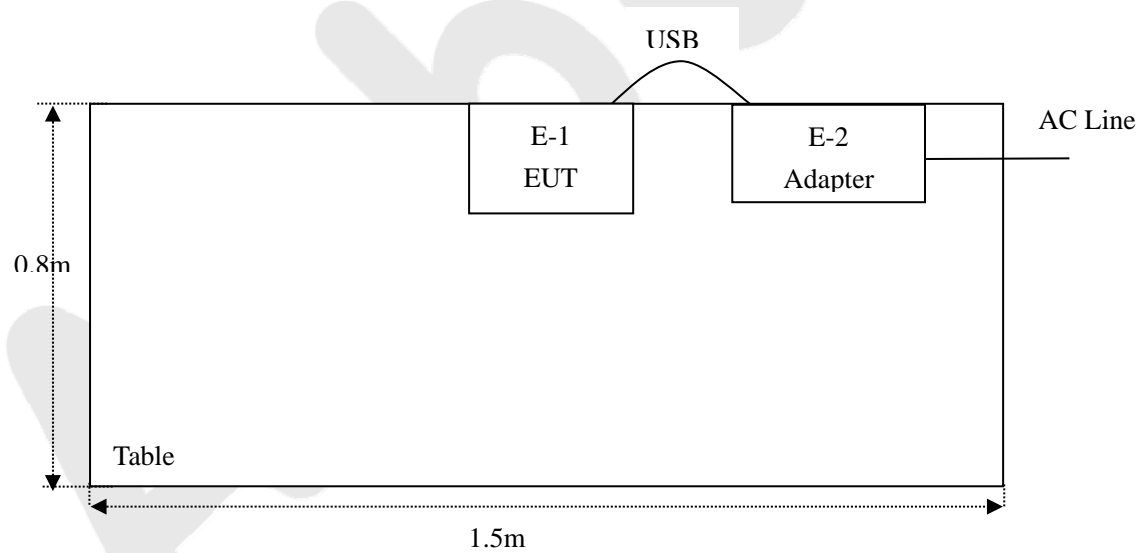
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	0.110	6	0.135	11	0.160	16	0.185
2	0.115	7	0.140	12	0.165	17	0.190
3	0.120	8	0.145	13	0.170	18	0.195
4	0.125	9	0.150	14	0.175	19	0.200
5	0.130	10	0.155	15	0.180	20	0.205

1.6. Description Of Test Setup

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1.7. 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.	Spectrum Analysis	Agilent	N9038A	MY53227295	May 27, 2017	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	May 27, 2017	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
8.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
10.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
11.	Horn Antenna	Schwarzbeck	BBHA9170	9170-375	May 27, 2017	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
13.	Pre-amplifier	SKET Electronic	BK1G40G50 A	KD25352	May 27, 2017	1 Year
14.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
15.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
16.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
17.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
18.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
19.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
20.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
21.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80 B	ZJ-17042804	Mar. 03, 2017	1 Year

1.8. Measurement Uncertainty

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

1.9. 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 D, Sogood Science and Technology Park,
Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

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

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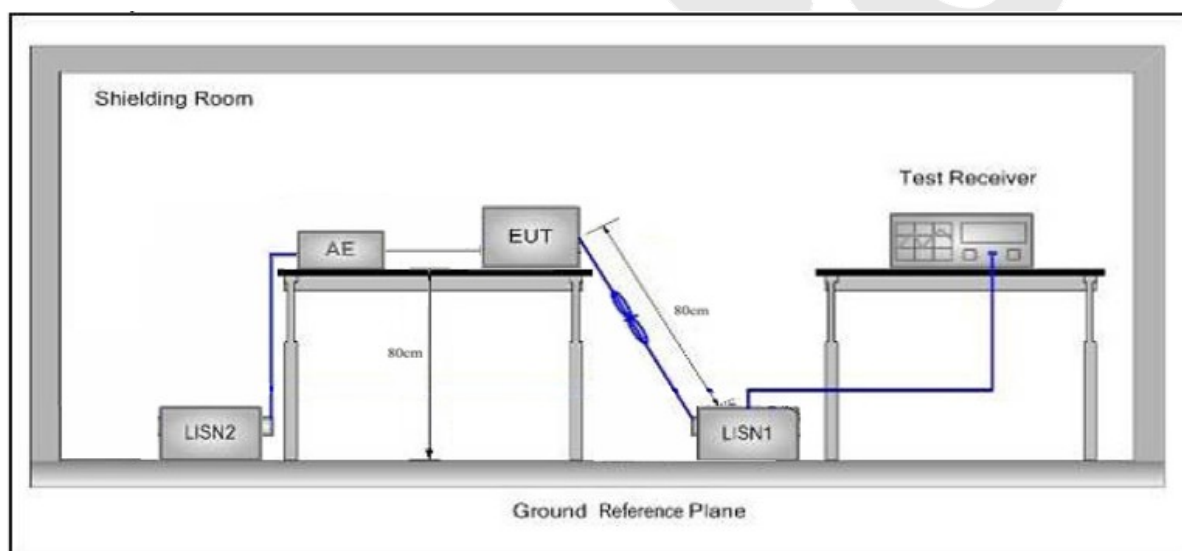
3. Conducted Emission Test

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.

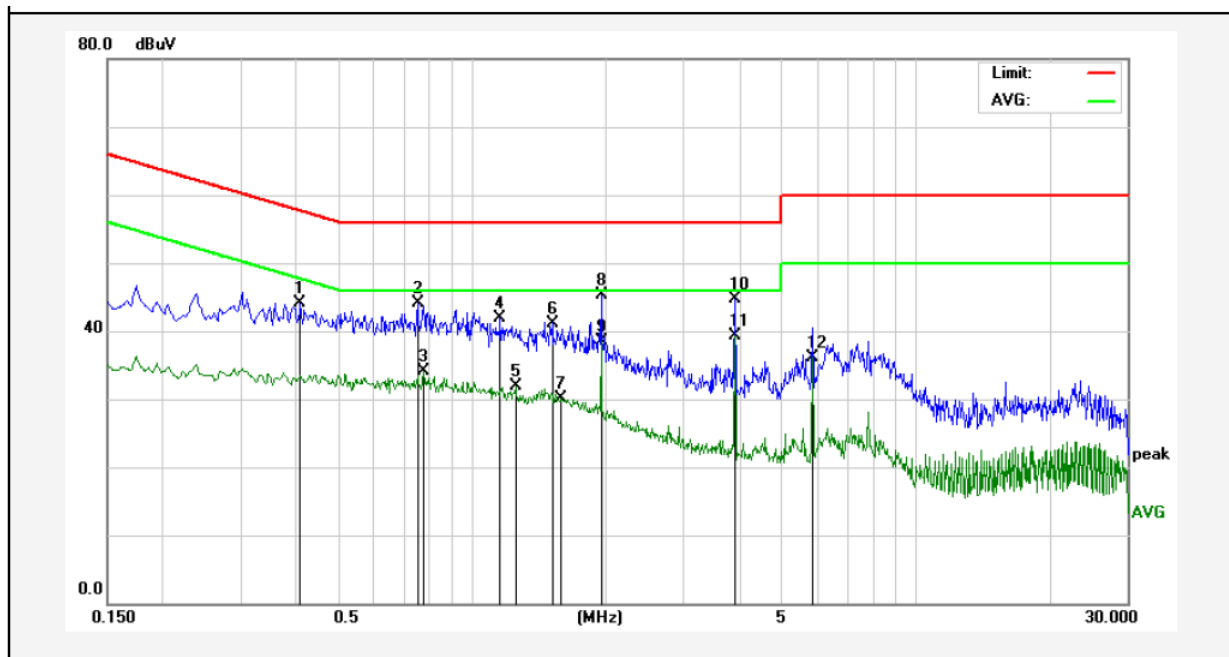
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

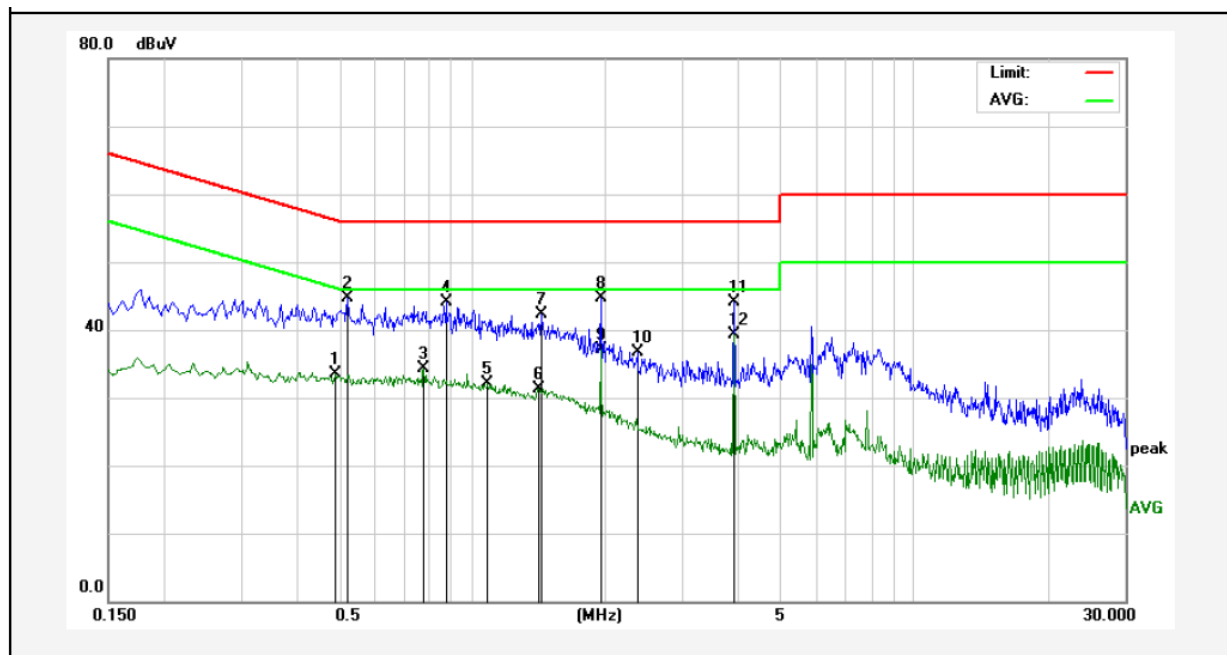
Test Site: 1# Shielded Room
Operating Condition: TX + Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.4100	26.22	17.94	44.16	57.65	-13.49	QP	
2	0.7539	26.10	18.05	44.15	56.00	-11.85	QP	
3	0.7780	16.00	18.06	34.06	46.00	-11.94	AVG	
4	1.1580	23.76	18.12	41.88	56.00	-14.12	QP	
5	1.2540	13.78	18.13	31.91	46.00	-14.09	AVG	
6	1.5140	23.07	18.13	41.20	56.00	-14.80	QP	
7	1.5900	12.06	18.13	30.19	46.00	-15.81	AVG	
8	1.9540	27.24	18.14	45.38	56.00	-10.62	QP	
9	1.9540	20.30	18.14	38.44	46.00	-7.56	AVG	
10	3.9100	26.62	18.18	44.80	56.00	-11.20	QP	
11	3.9100	21.21	18.18	39.39	46.00	-6.61	AVG	
12	5.8620	17.92	18.23	36.15	50.00	-13.85	AVG	

Conducted Emission Test Data

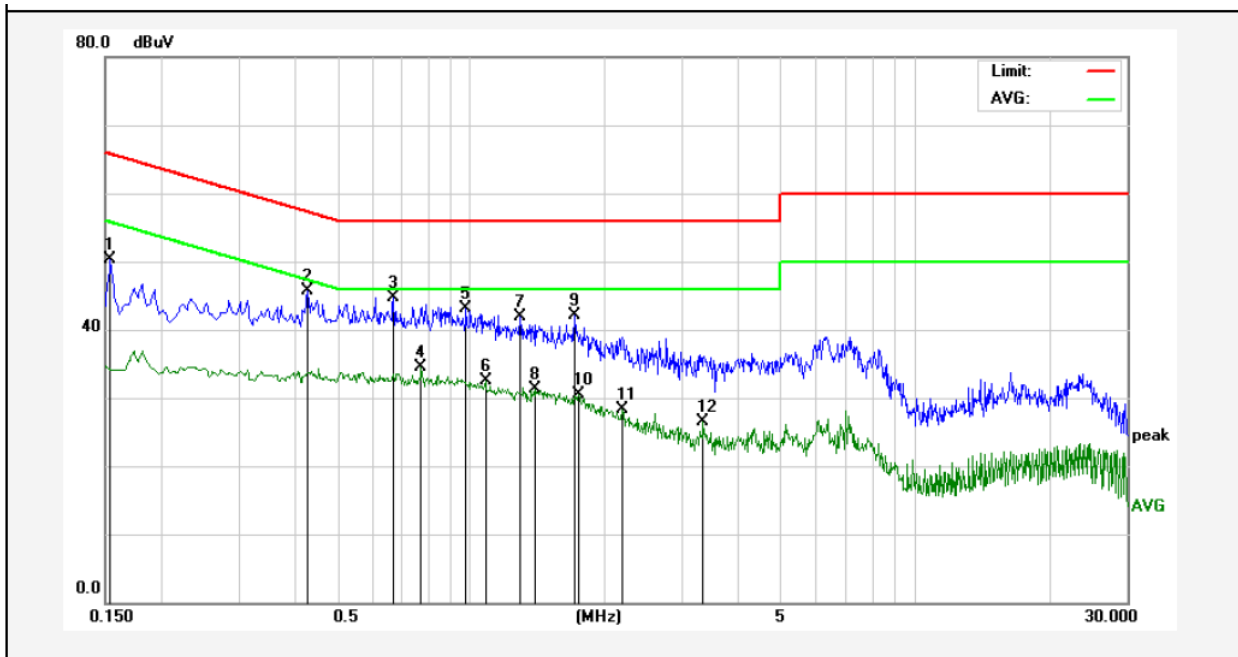
Test Site: 1# Shielded Room
Operating Condition: TX + Charging Mode
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit dBUV	Over Limit (dB)	Detector	Remark
1	0.4900	15.43	17.98	33.41	46.17	-12.76	AVG	
2	0.5220	26.69	17.99	44.68	56.00	-11.32	QP	
3	0.7780	16.15	18.06	34.21	46.00	-11.79	AVG	
4	0.8740	25.93	18.09	44.02	56.00	-11.98	QP	
5	1.0859	14.07	18.12	32.19	46.00	-13.81	AVG	
6	1.4140	13.26	18.13	31.39	46.00	-14.61	AVG	
7	1.4380	24.13	18.13	42.26	56.00	-13.74	QP	
8	1.9580	26.63	18.14	44.77	56.00	-11.23	QP	
9	1.9580	18.92	18.14	37.06	46.00	-8.94	AVG	
10	2.3620	18.63	18.15	36.78	56.00	-19.22	QP	
11	3.9100	25.98	18.18	44.16	56.00	-11.84	QP	
12	3.9100	21.13	18.18	39.31	46.00	-6.69	AVG	

Conducted Emission Test Data

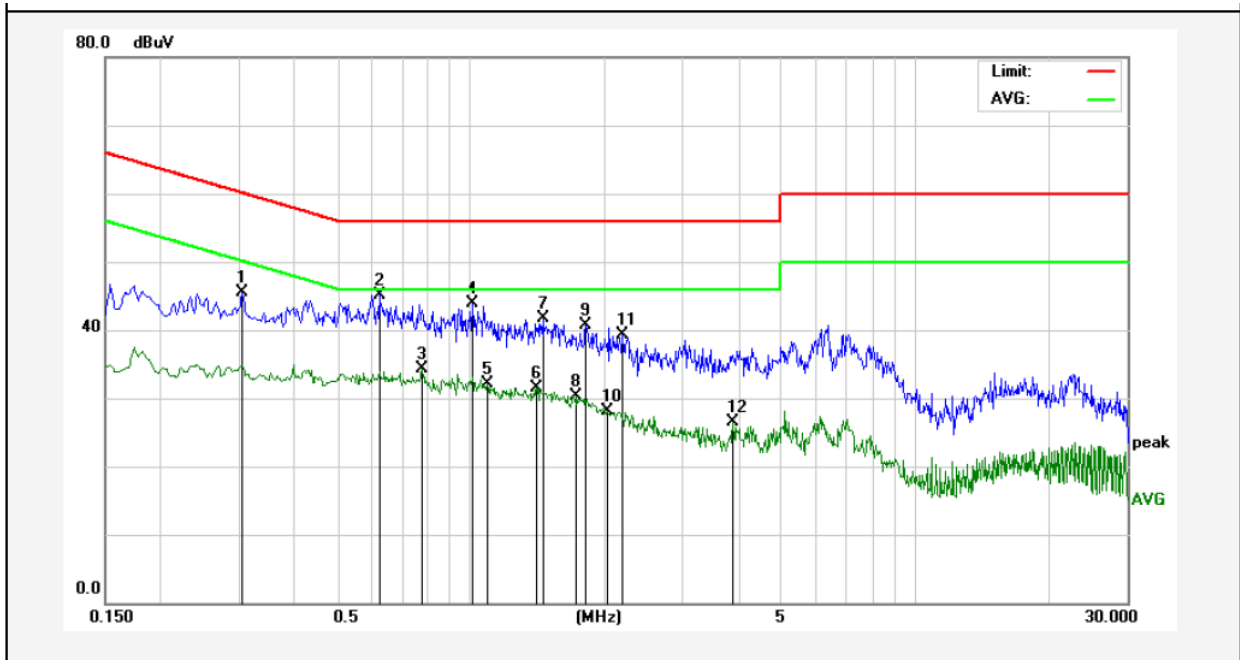
Test Site: 1# Shielded Room
Operating Condition: TX + Charging Mode
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.:25℃ Hum.:50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1539	32.32	17.90	50.22	65.78	-15.56	QP	
2	0.4300	27.71	17.95	45.66	57.25	-11.59	QP	
3	0.6700	26.68	18.03	44.71	56.00	-11.29	QP	
4	0.7740	16.44	18.06	34.50	46.00	-11.50	AVG	
5	0.9780	24.95	18.11	43.06	56.00	-12.94	QP	
6	1.0780	14.30	18.12	32.42	46.00	-13.58	AVG	
7	1.2900	23.79	18.13	41.92	56.00	-14.08	QP	
8	1.3900	13.17	18.13	31.30	46.00	-14.70	AVG	
9	1.7100	24.05	18.13	42.18	56.00	-13.82	QP	
10	1.7460	12.29	18.13	30.42	46.00	-15.58	AVG	
11	2.1900	10.08	18.14	28.22	46.00	-17.78	AVG	
12	3.3380	8.26	18.17	26.43	46.00	-19.57	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: TX + Charging 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	0.3060	27.66	17.89	45.55	60.08	-14.53	QP	
2	0.6220	27.18	18.02	45.20	56.00	-10.80	QP	
3	0.7780	16.26	18.06	34.32	46.00	-11.68	AVG	
4	1.0060	25.72	18.12	43.84	56.00	-12.16	QP	
5	1.0900	13.92	18.12	32.04	46.00	-13.96	AVG	
6	1.4060	13.40	18.13	31.53	46.00	-14.47	AVG	
7	1.4500	23.48	18.13	41.61	56.00	-14.39	QP	
8	1.7300	12.12	18.13	30.25	46.00	-15.75	AVG	
9	1.8180	22.64	18.14	40.78	56.00	-15.22	QP	
10	2.0300	10.01	18.14	28.15	46.00	-17.85	AVG	
11	2.1900	21.10	18.14	39.24	56.00	-16.76	QP	
12	3.8900	8.30	18.18	26.48	46.00	-19.52	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

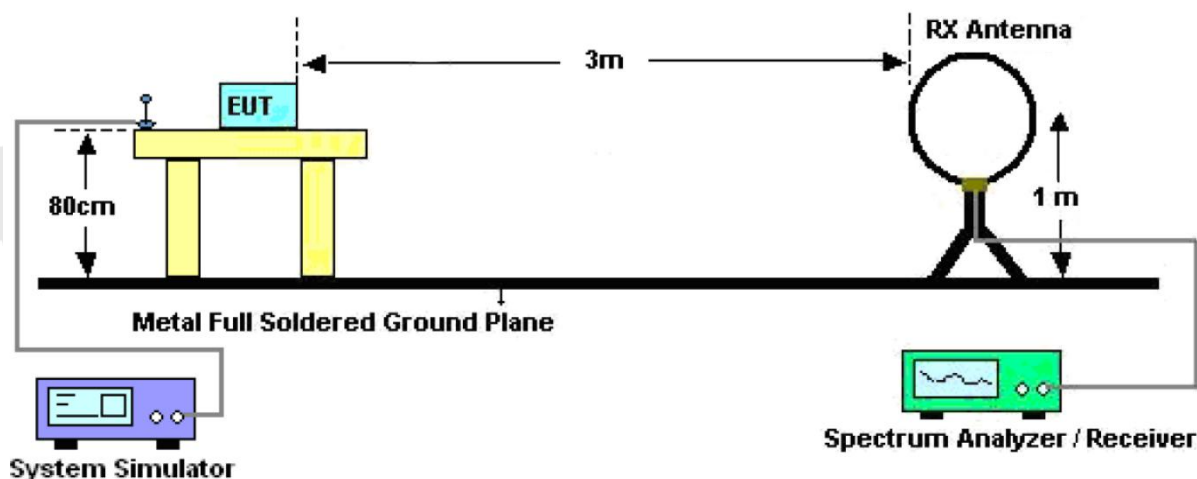


Figure 1. Below 30MHz

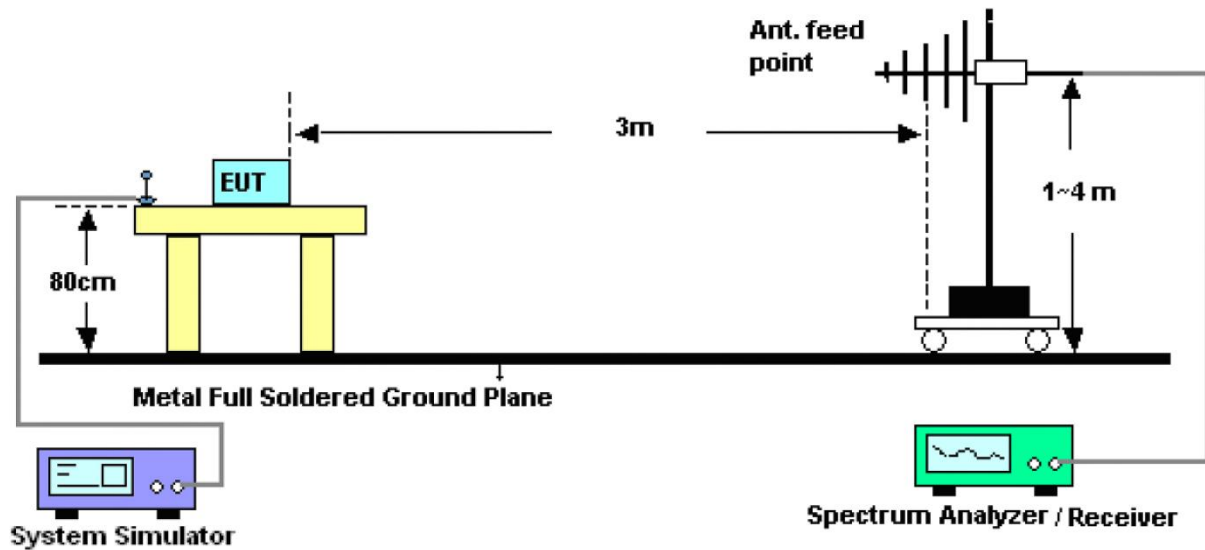


Figure 2. 30MHz to 1GHz

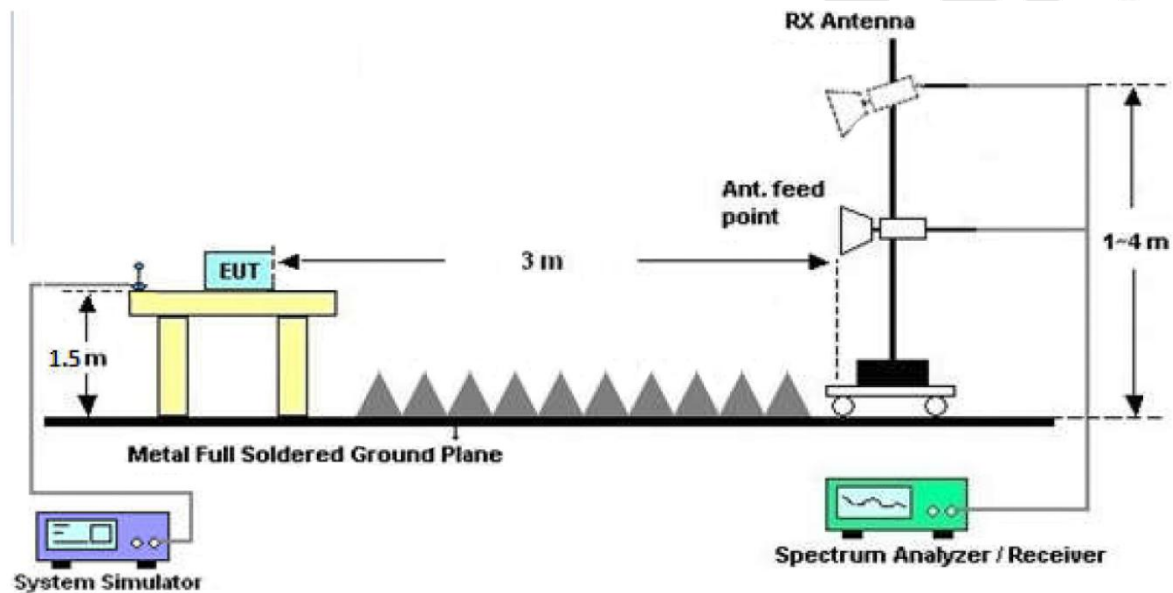


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.1m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 0.1m 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

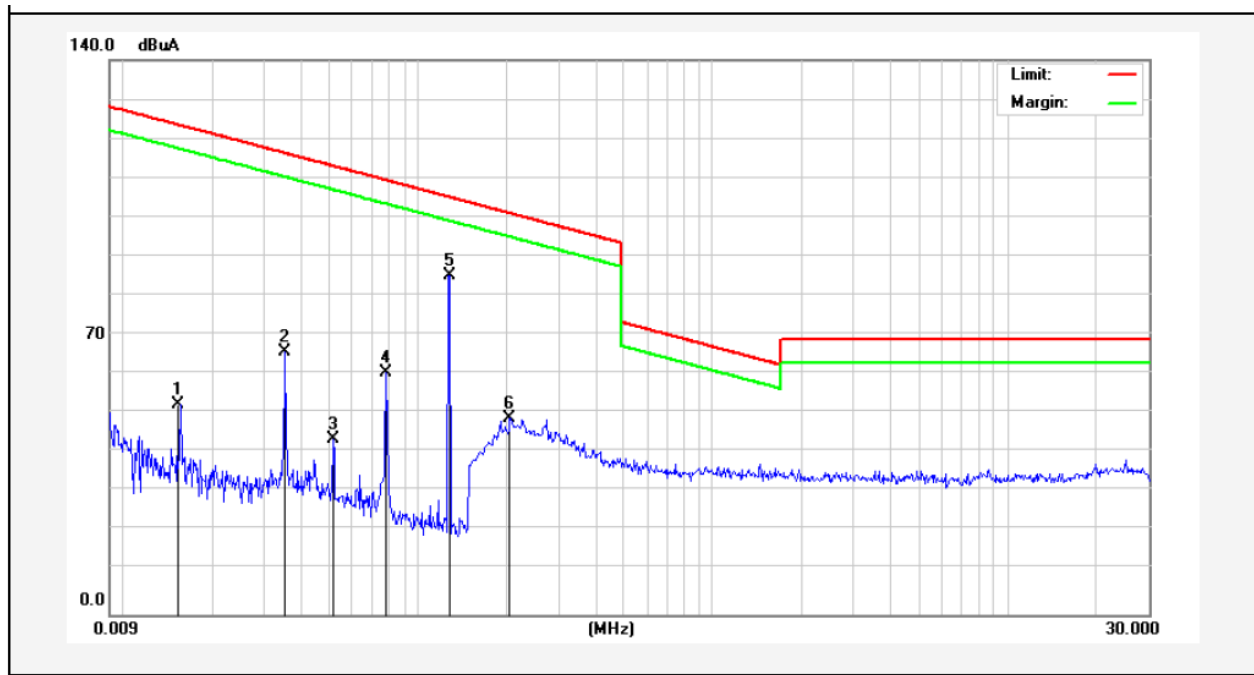
PASS

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Test Results

(Between 9KHz – 30MHz)

Job No.:	SZAWW171225002-02		
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 + Charging Mode	Distance:	3m

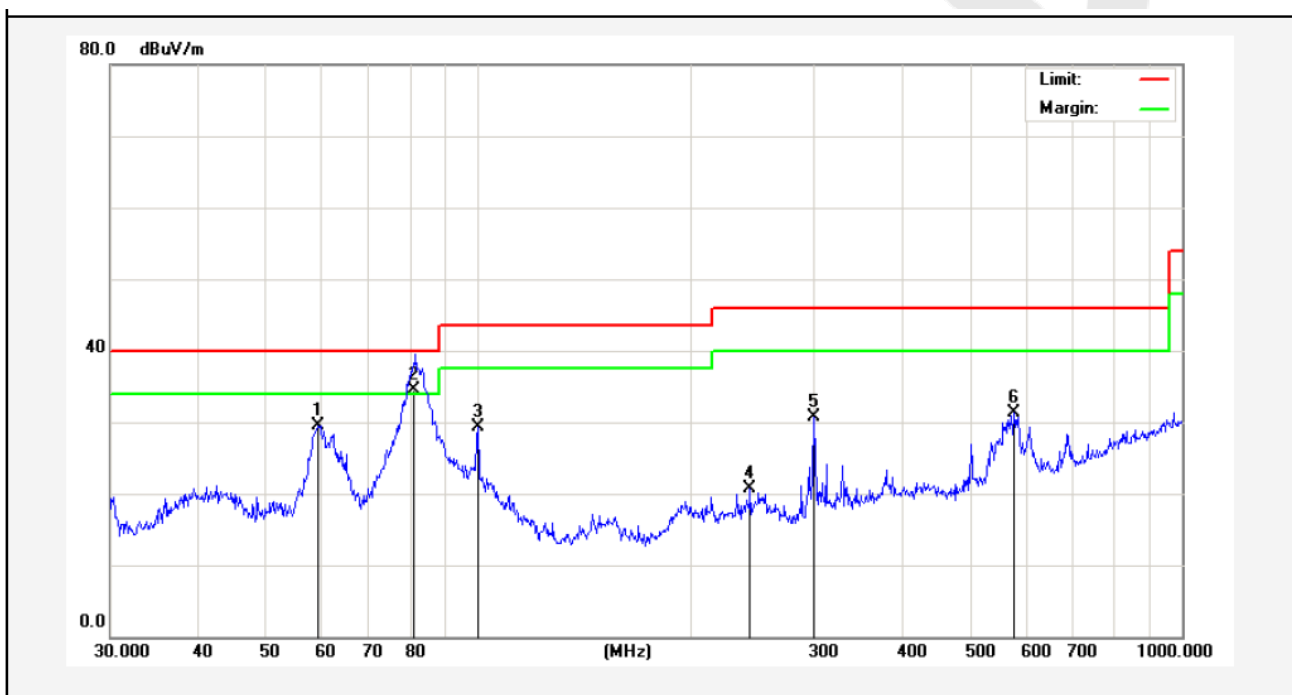


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0154	31.38	19.21	2.50	0	53.09	123.69	-70.60	Peak	47
0.0154	26.95	19.21	2.50	0	48.66	103.69	-55.03	AV	47
0.0354	44.42	19.28	2.53	0	66.23	116.50	-50.27	Peak	69
0.0354	37.41	19.28	2.53	0	59.22	96.50	-37.28	AV	69
0.0517	22.45	19.29	2.54	0	44.28	113.22	-68.94	Peak	120
0.0517	18.28	19.29	2.54	0	40.11	93.22	-53.11	AV	120
0.0781	39.37	19.31	2.56	0	61.24	109.66	-48.42	Peak	174
0.0781	33.34	19.31	2.56	0	55.21	89.66	-34.45	AV	174
0.1280	63.69	19.42	2.58	0	85.69	105.39	-19.70	Peak	225
0.1280	54.95	19.42	2.58	0	76.95	85.39	-8.44	AV	225
0.2058	26.86	20.11	2.61	0	49.58	101.29	-51.71	Peak	88
0.2058	21.49	20.11	2.61	0	44.21	81.29	-37.08	AV	88

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.

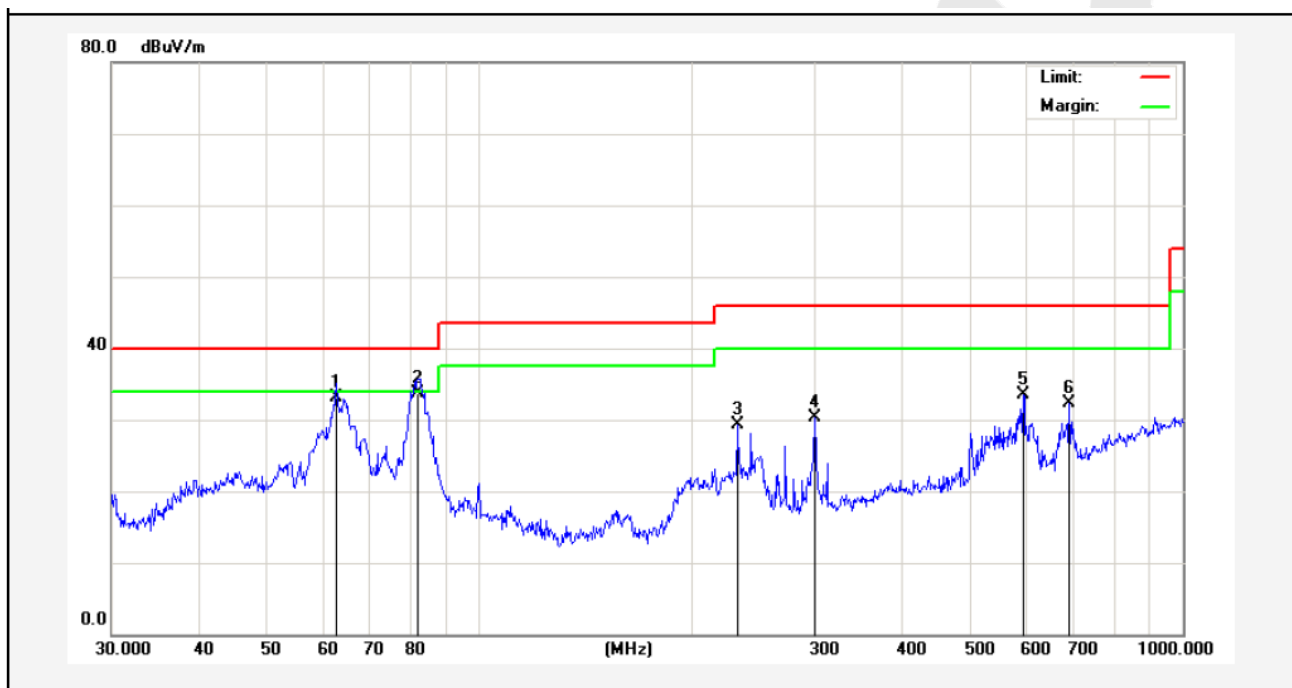
(Between 30MHz –1000 MHz)

Job No.:	SZAWW171225002-02	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 + Charging 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	59.2325	44.83	-15.32	29.51	40.00	-10.49	QP	300	14	
2	81.1970	56.19	-21.59	34.60	40.00	-5.40	QP	300	79	
3	99.8777	50.16	-20.78	29.38	43.50	-14.12	QP	300	124	
4	243.3772	38.92	-18.24	20.68	46.00	-25.32	QP	300	165	
5	300.3672	48.38	-17.65	30.73	46.00	-15.27	QP	300	199	
6	576.6443	42.45	-11.17	31.28	46.00	-14.72	QP	300	234	

Job No.:	SZAWW171225002-02	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 + Charging 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	62.6507	49.66	-16.50	33.16	40.00	-6.84	QP	300	14	
2	81.7833	53.10	-19.39	33.71	40.00	-6.29	QP	300	54	
3	232.5318	43.79	-14.47	29.32	46.00	-16.68	QP	300	114	
4	300.3672	45.09	-14.69	30.40	46.00	-15.60	QP	300	162	
5	593.0497	42.91	-9.36	33.55	46.00	-12.45	QP	300	197	
6	689.5644	40.93	-8.56	32.37	46.00	-13.63	QP	300	212	

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

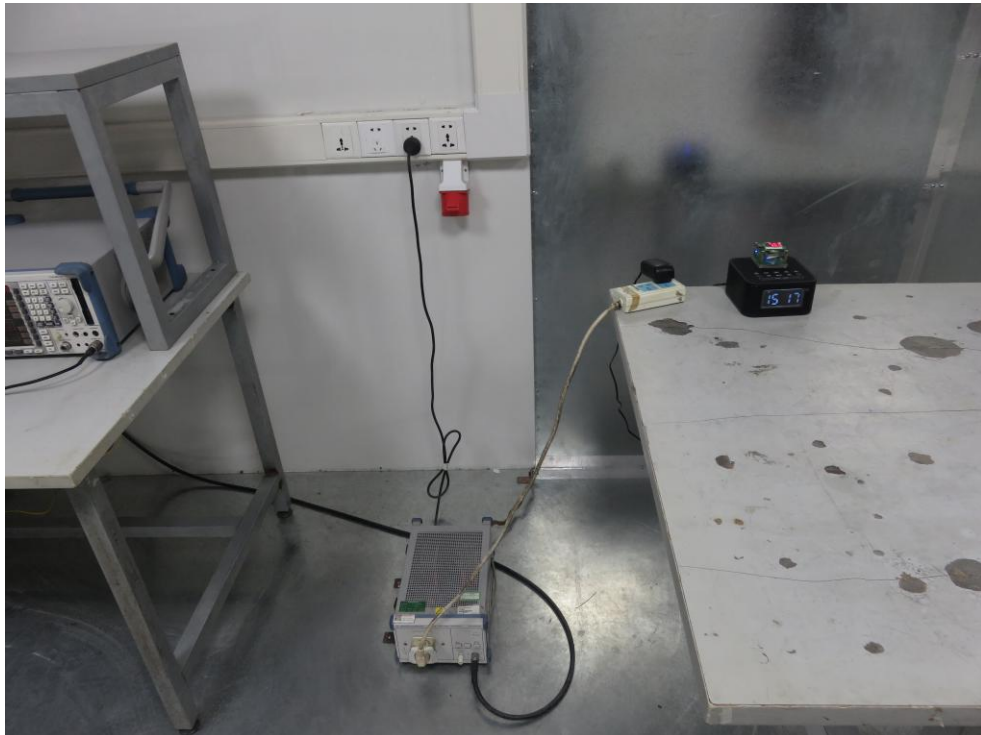
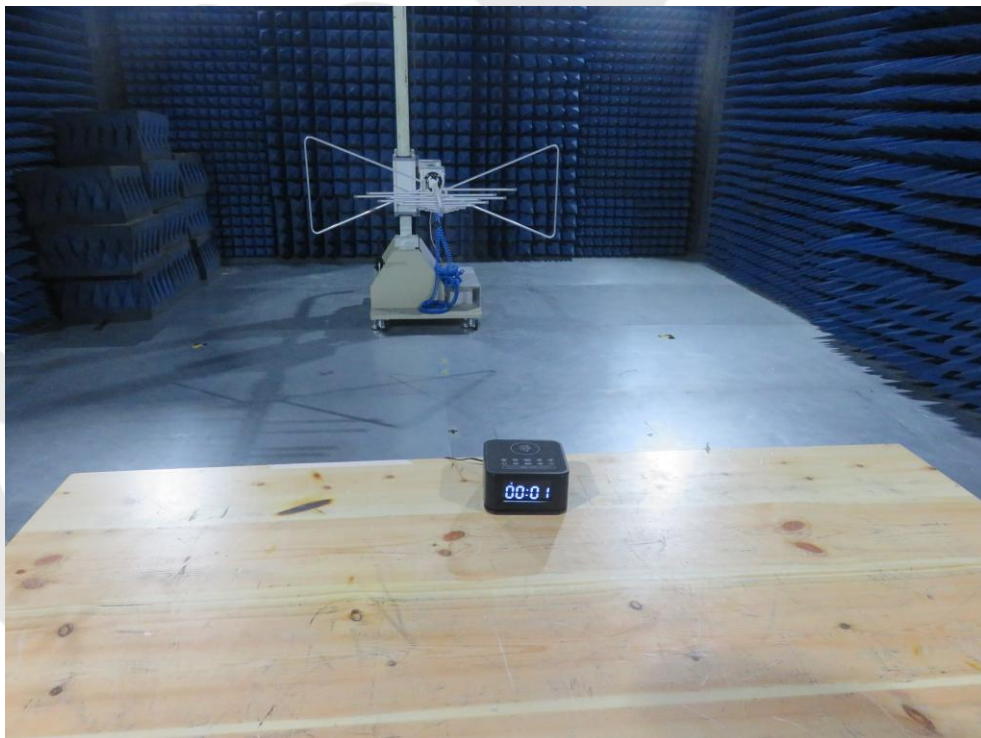
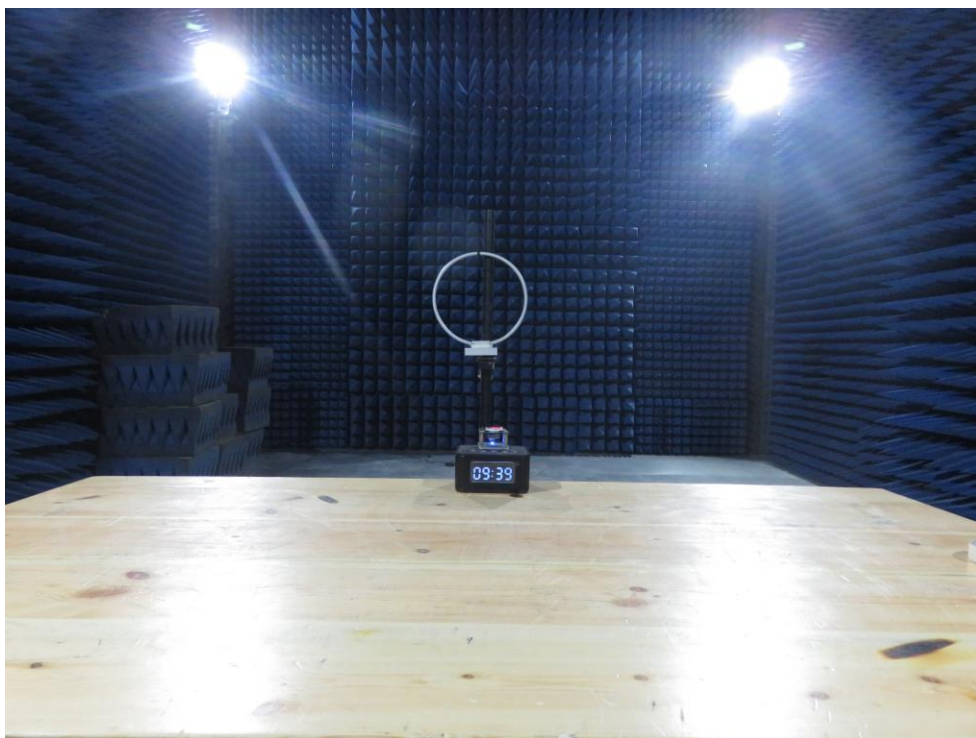


Photo of Radiation Emission Test





APPENDIX II -- EXTERNAL PHOTOGRAPH

Please see the test report of SZAWW171225002-01

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APPENDIX III -- INTERNAL PHOTOGRAPH

Please see the test report of SZAWW171225002-01

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End of Report