

FCC TEST REPORT

For

Anker Innovations Limited

PowerWave Pad with Watch Holder

Model No.: A2570

Prepared For : Anker Innovations Limited
Address : Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon,
Hong Kong

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
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Report Number : SZAWW181222002-01

Date of Receipt : Dec. 22, 2018

Date of Test : Dec. 22~29, 2018

Date of Report : Dec. 29, 2018

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TEST REPORT

Applicant : Anker Innovations Limited
Manufacturer : Anker Innovations Limited
Product Name : PowerWave Pad with Watch Holder
Model No. : A2570
Trade Mark : ANKER
Rating(s) : Input: 5V=== 2.4A/ 9V=== 2A/ 12V=== 1.5A
Output: 5W / 7.5W / 10W

Test Standard(s) : FCC Part15 Subpart C 2018, 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. 22~29, 2018

Prepared By



Dolly Mo

(Engineer / Dolly Mo)

Reviewer

Snowy Meng

(Supervisor / Snowy Meng)

Approved & Authorized Signer

Sally Zhang

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong
Manufacturer	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong
Factory	:	HU NAN GIANTSUN POWER ELECTRONICS CO., LTD
Address	:	Building 16&17, Taiwan Industrial Zone, Nonferrous Metals Industrial Park, Chenzhou, Hunan, China

1.2. Description of Device (EUT)

Product Name	:	PowerWave Pad with Watch Holder	
Model No.	:	A2570	
Trade Mark	:	ANKER	
Test Power Supply	:	AC 240V, 60Hz for adapter/ AC 120V, 60Hz for adapter	
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)	
Product Description	:	Operation Frequency:	111~205KHz
		Modulation Type:	MSK
		Antenna Type:	Inductive loop coil 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.			

1.3. Auxiliary Equipment Used During Test

Adapter	:	Model: A2013 Input: 100-240V~ 50-60Hz 0.7A Output: 3.6-6.5V=== 3A/ 6.5-9V=== 2A/ 9-12V=== 1.5A
Mobile Phone	:	HUAWEI Mate 20 Pro

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.

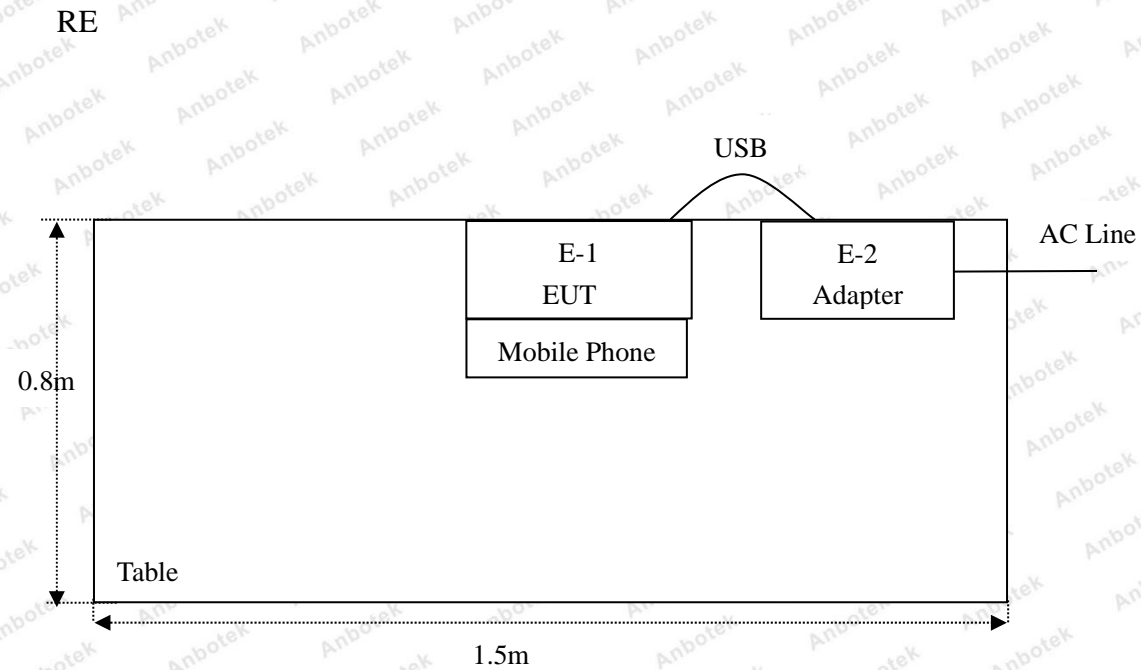
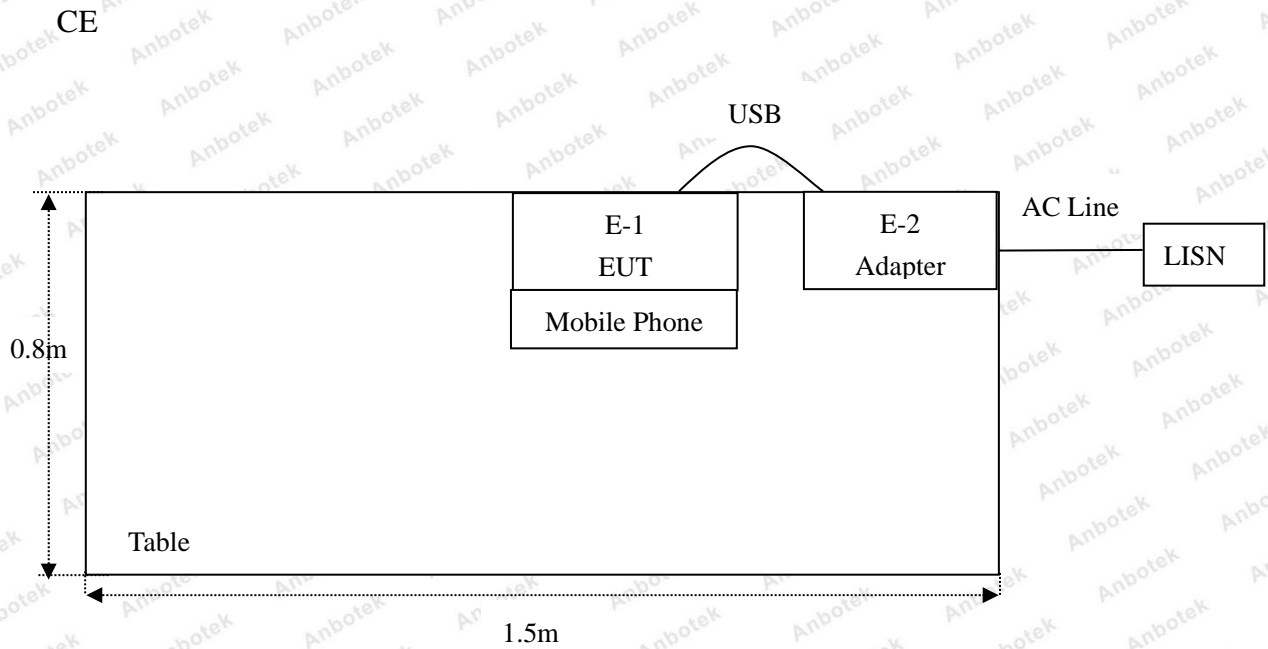
Remark: All the conditions have been tested. It is found that 10W is the worst mode, and the data in the report only reflects the worst mode.

Pretest Mode	Description
Mode 1	Keeping TX mode

For Conducted Emission	
Final Test Mode	Description
Mode 1	Keeping TX mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	Keeping TX mode

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	Nov. 05, 2018	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 05, 2018	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 05, 2018	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 05, 2018	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 05, 2018	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 19, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 19, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 19, 2018	1 Year
10.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Nov. 20, 2018	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Nov. 05, 2018	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 05, 2018	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 05, 2018	1 Year
15.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 05, 2018	1 Year
16.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 05, 2018	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 05, 2018	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 05, 2018	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Apr. 02, 2018	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 01, 2018	1 Year

1.7. 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

Shenzhen Anbotek Compliance Laboratory Limited.

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
Part 15.203	Antenna Requirement	PASS

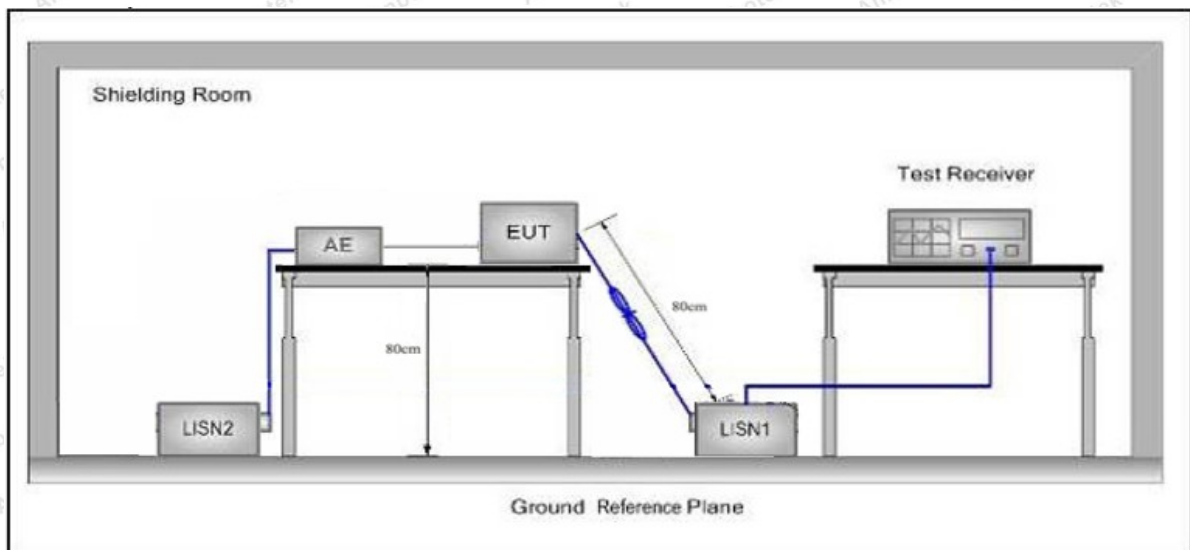
3. Conducted Emission Test

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.

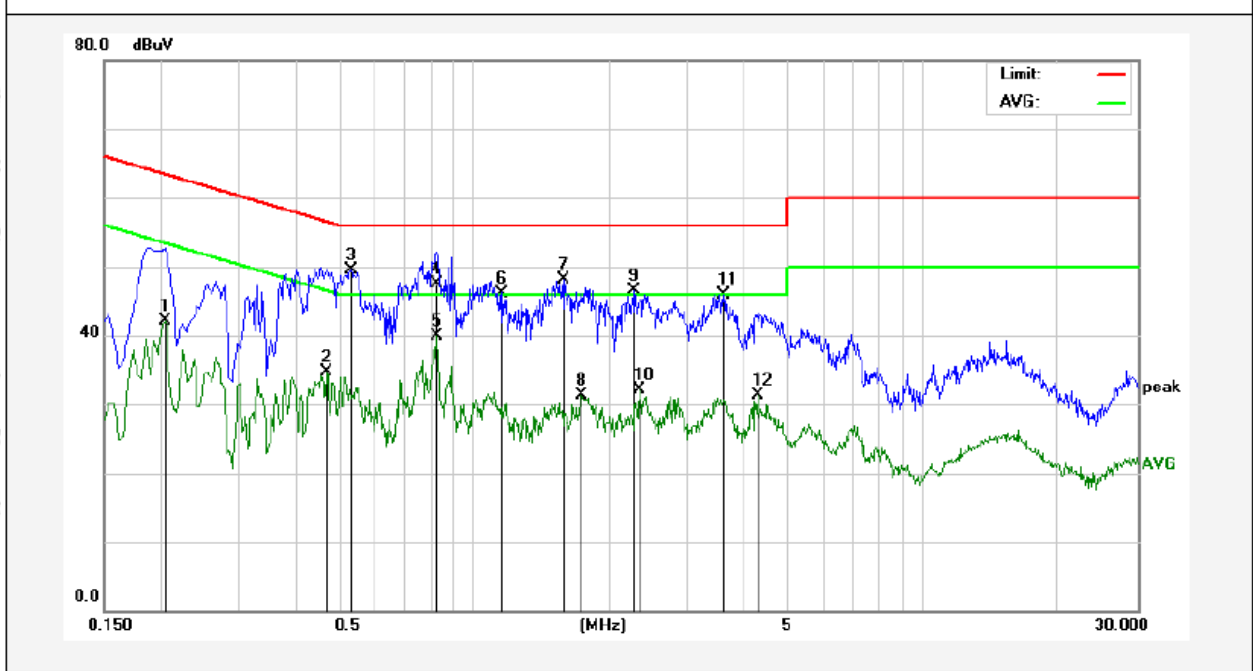
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

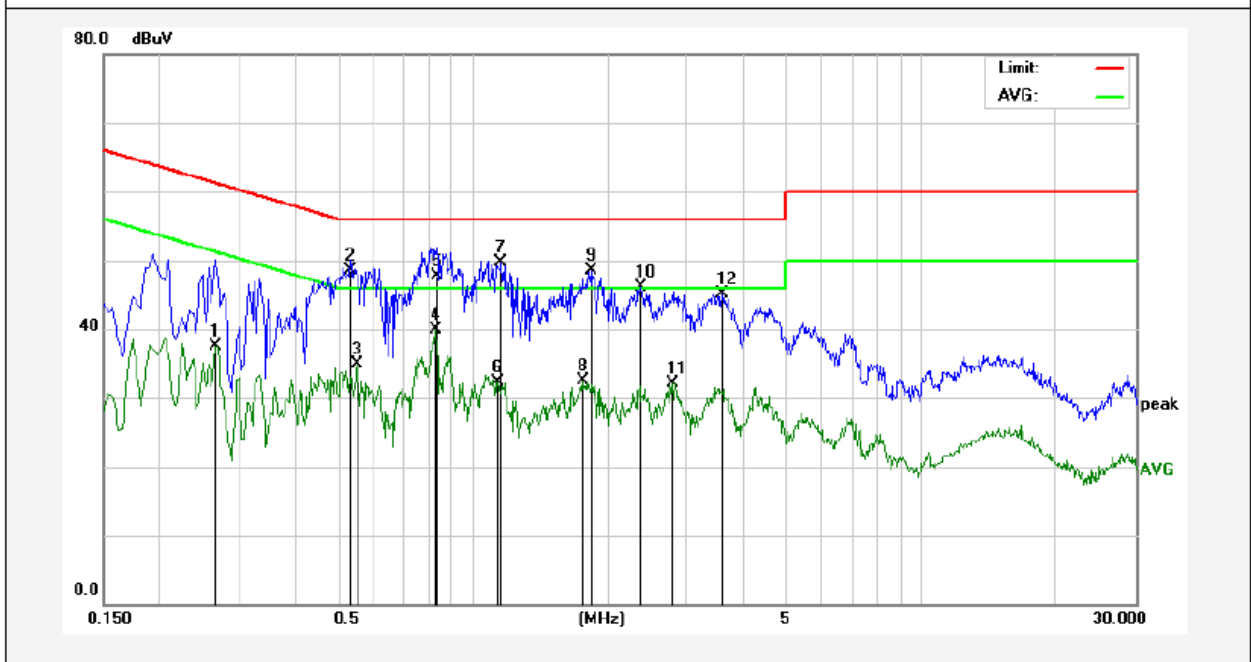
Test Site: 1# Shielded Room
 Operating Condition: Keeping TX mode
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Live Line
 Tem.: 24.3°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2060	22.12	19.90	42.02	53.36	-11.34	AVG	
2	0.4700	14.81	19.97	34.78	46.51	-11.73	AVG	
3	0.5340	29.52	19.99	49.51	56.00	-6.49	QP	
4	0.8300	27.46	20.07	47.53	56.00	-8.47	QP	
5	0.8300	19.74	20.07	39.81	46.00	-6.19	AVG	
6	1.1580	26.08	20.12	46.20	56.00	-9.80	QP	
7	1.5859	28.00	20.13	48.13	56.00	-7.87	QP	
8	1.7420	11.17	20.13	31.30	46.00	-14.70	AVG	
9	2.2740	26.28	20.15	46.43	56.00	-9.57	QP	
10	2.3420	11.89	20.15	32.04	46.00	-13.96	AVG	
11	3.5860	25.74	20.17	45.91	56.00	-10.09	QP	
12	4.2700	11.08	20.19	31.27	46.00	-14.73	AVG	

Conducted Emission Test Data

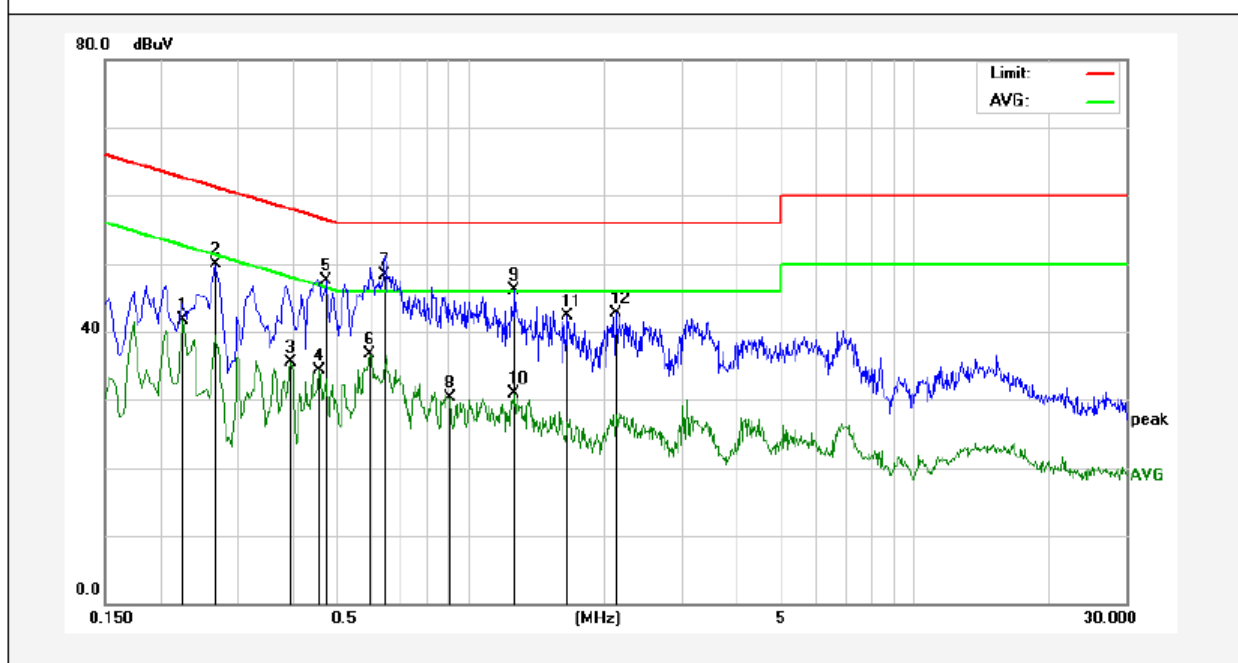
Test Site: 1# Shielded Room
 Operating Condition: Keeping TX mode
 Test Specification: AC 240V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 24.3°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2660	17.60	19.89	37.49	51.24	-13.75	AVG	
2	0.5340	28.56	19.99	48.55	56.00	-7.45	QP	
3	0.5540	14.88	20.00	34.88	46.00	-11.12	AVG	
4	0.8300	19.82	20.07	39.89	46.00	-6.11	AVG	
5	0.8340	27.58	20.08	47.66	56.00	-8.34	QP	
6	1.1380	12.19	20.12	32.31	46.00	-13.69	AVG	
7	1.1539	29.65	20.12	49.77	56.00	-6.23	QP	
8	1.7580	12.28	20.14	32.42	46.00	-13.58	AVG	
9	1.8380	28.33	20.14	48.47	56.00	-7.53	QP	
10	2.3699	25.87	20.15	46.02	56.00	-9.98	QP	
11	2.7820	12.03	20.16	32.19	46.00	-13.81	AVG	
12	3.5900	25.02	20.17	45.19	56.00	-10.81	QP	

Conducted Emission Test Data

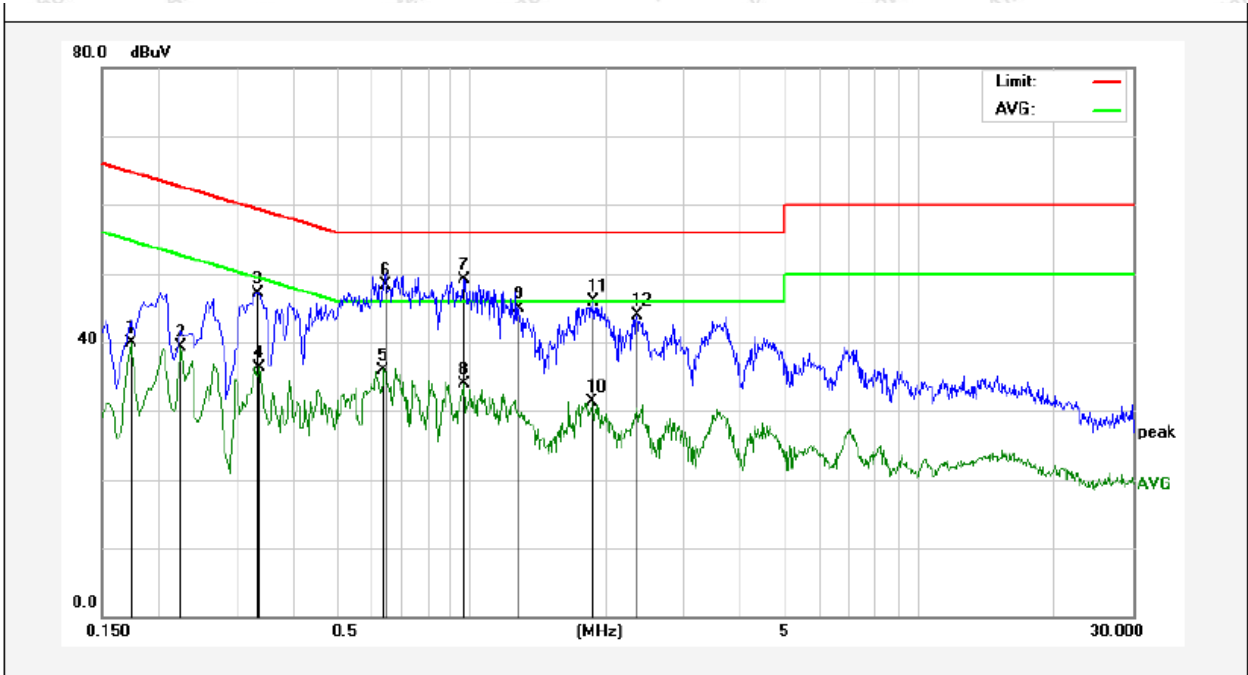
Test Site: 1# Shielded Room
 Operating Condition: Keeping TX mode
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 24.3°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.2260	21.81	19.89	41.70	52.59	-10.89	AVG	
2	0.2660	29.92	19.89	49.81	61.24	-11.43	QP	
3	0.3940	15.49	19.93	35.42	47.98	-12.56	AVG	
4	0.4580	14.44	19.96	34.40	46.73	-12.33	AVG	
5	0.4740	27.60	19.97	47.57	56.44	-8.87	QP	
6	0.5940	16.69	20.01	36.70	46.00	-9.30	AVG	
7	0.6419	28.22	20.02	48.24	56.00	-7.76	QP	
8	0.9020	10.20	20.09	30.29	46.00	-15.71	AVG	
9	1.2620	26.06	20.13	46.19	56.00	-9.81	QP	
10	1.2620	10.73	20.13	30.86	46.00	-15.14	AVG	
11	1.6580	22.14	20.13	42.27	56.00	-13.73	QP	
12	2.1220	22.56	20.14	42.70	56.00	-13.30	QP	

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.: 24.3°C Hum.: 60%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Over Limit (dB)	Detector	Remark
1	0.1740	20.00	19.90	39.90	54.76	-14.86	AVG	
2	0.2260	19.34	19.89	39.23	52.59	-13.36	AVG	
3	0.3339	27.24	19.91	47.15	59.35	-12.20	QP	
4	0.3379	16.37	19.91	36.28	49.25	-12.97	AVG	
5	0.6380	15.98	20.02	36.00	46.00	-10.00	AVG	
6	0.6460	28.24	20.02	48.26	56.00	-7.74	QP	
7	0.9660	29.05	20.11	49.16	56.00	-6.84	QP	
8	0.9660	13.72	20.11	33.83	46.00	-12.17	AVG	
9	1.2860	24.78	20.13	44.91	56.00	-11.09	QP	
10	1.8620	11.15	20.14	31.29	46.00	-14.71	AVG	
11	1.8780	25.68	20.14	45.82	56.00	-10.18	QP	
12	2.3580	23.77	20.15	43.92	56.00	-12.08	QP	

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

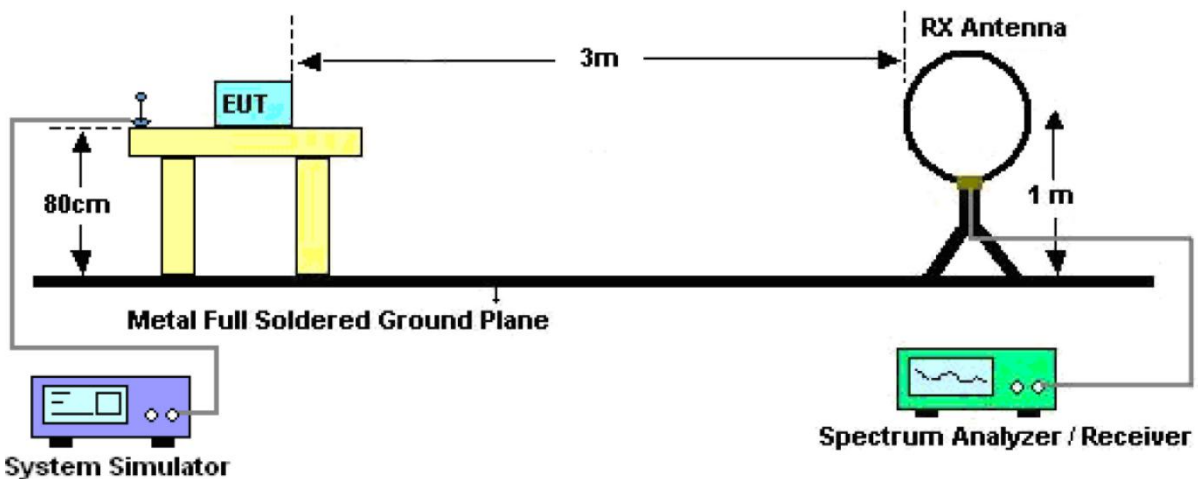


Figure 1. Below 30MHz

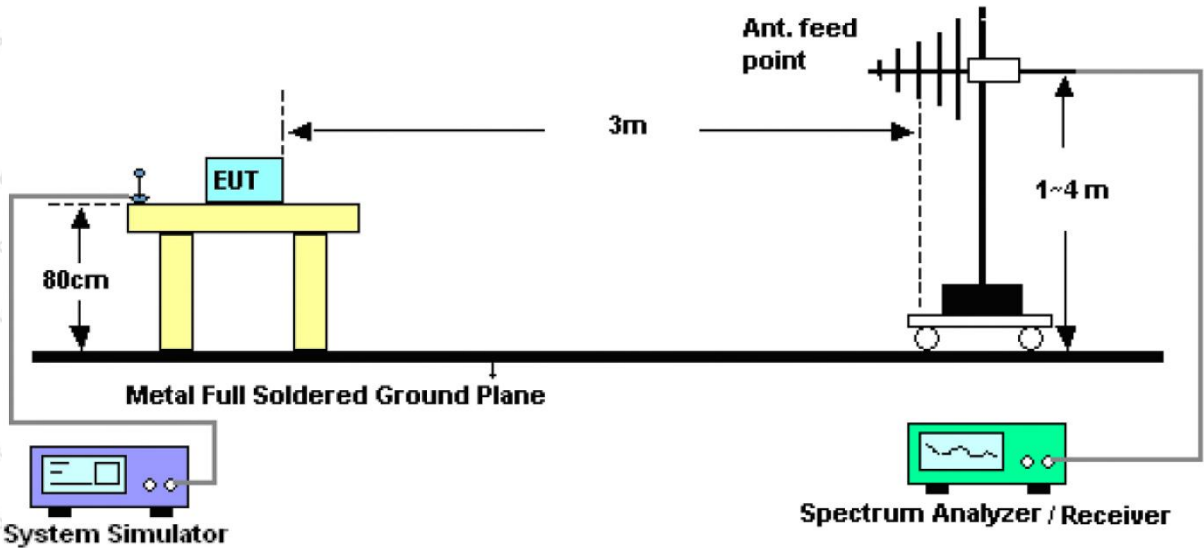


Figure 2. 30MHz to 1GHz

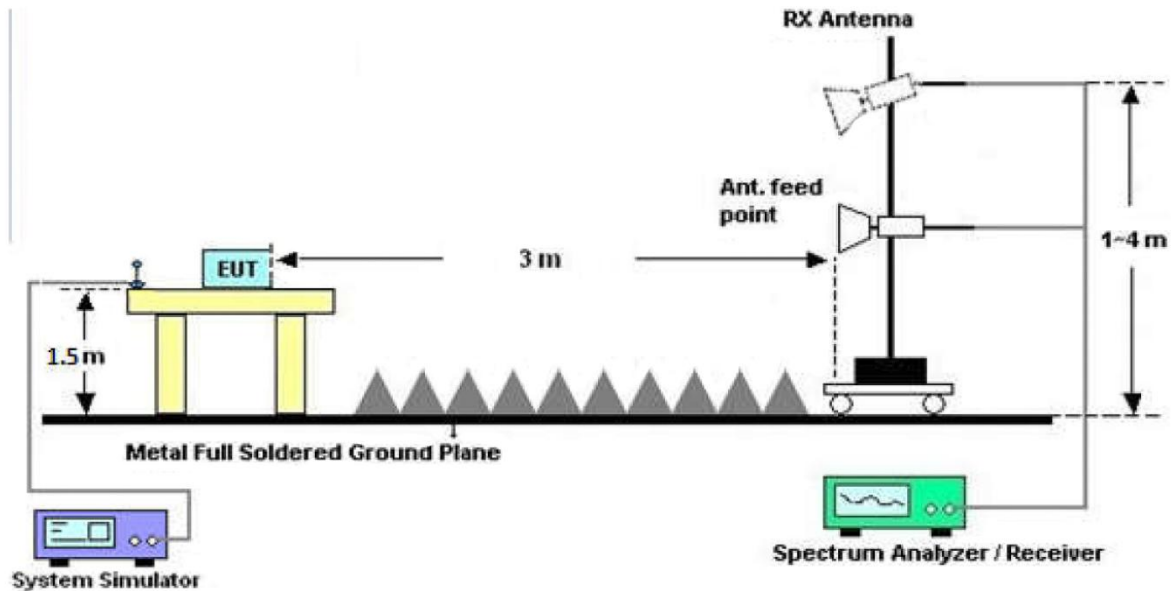


Figure 3. Above 1 GHz

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.

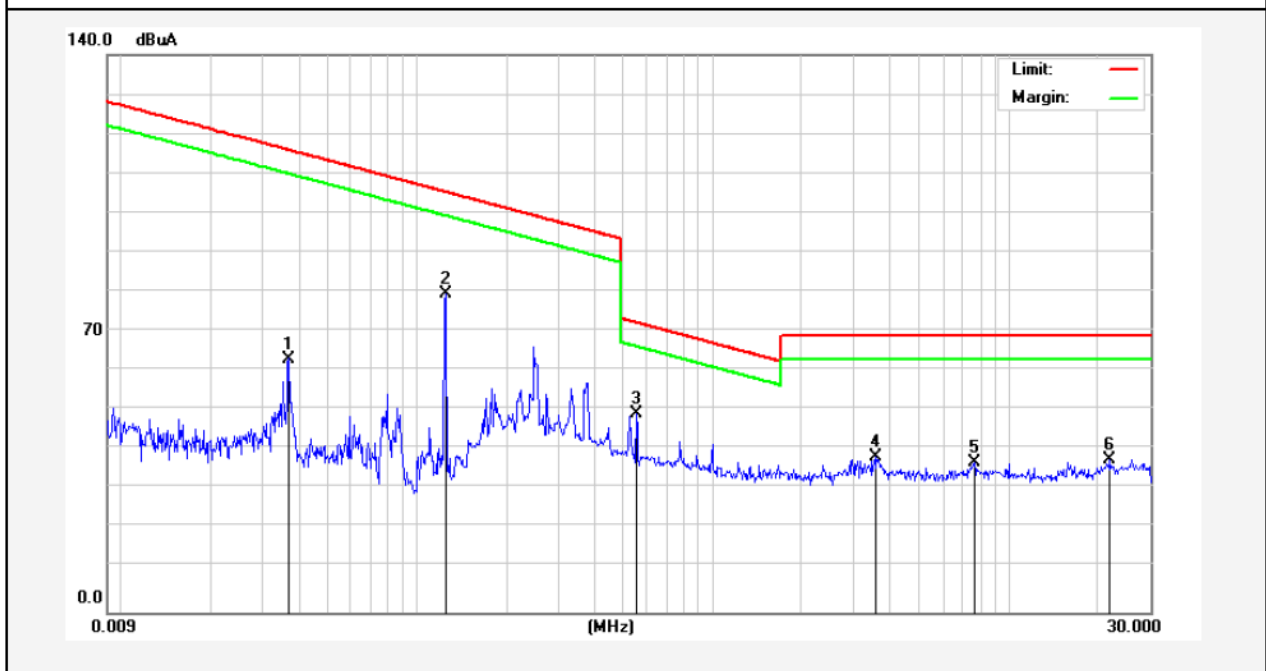
4.4. Test Data

PASS

Test Results

(Between 9KHz – 30MHz)

Job No.:	SZAWW181222002-01	Power Source:	AC 120V, 60Hz for adapter
Standard:	FCC PART15 C _3m	Temp.(C)/Hum. (%RH):	24.3°C/60%RH
Test item:	Radiation Test	Distance:	3m
Test Mode:	Mode 1		

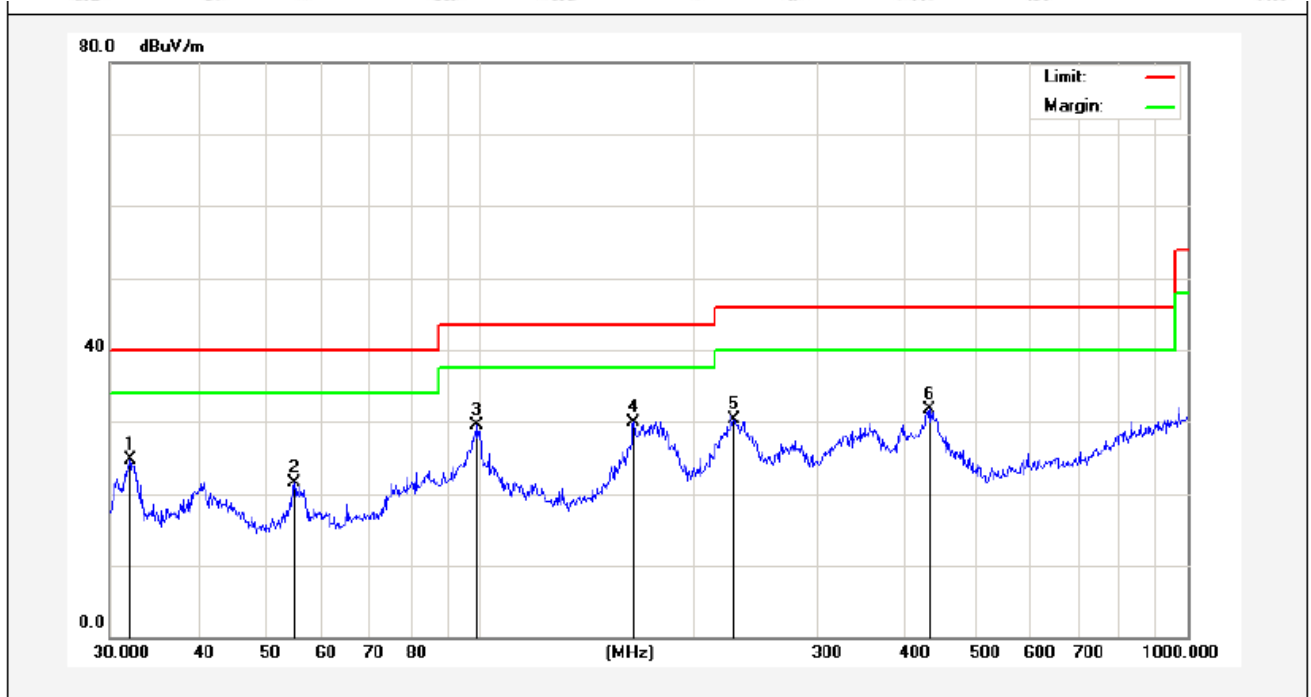


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dgc)
0.0371	48.06	19.28	2.53	0	69.87	136.09	-66.22	Peak	56
0.0371	41.89	19.28	2.53	0	63.70	116.09	-52.39	AV	56
0.1250	59.12	19.32	2.55	0	80.99	125.60	-44.61	Peak	89
0.1250	58.11	19.32	2.55	0	79.98	105.60	-25.62	AV	89
0.5540	27.90	19.36	2.65	0	49.91	72.73	-22.82	QP	145
3.5619	16.92	19.44	2.71	0	39.07	69.54	-30.47	QP	156
7.6619	14.97	19.89	2.87	0	37.73	69.54	-31.81	QP	59
21.9460	14.62	20.02	3.64	0	38.28	69.54	-31.26	QP	62

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.

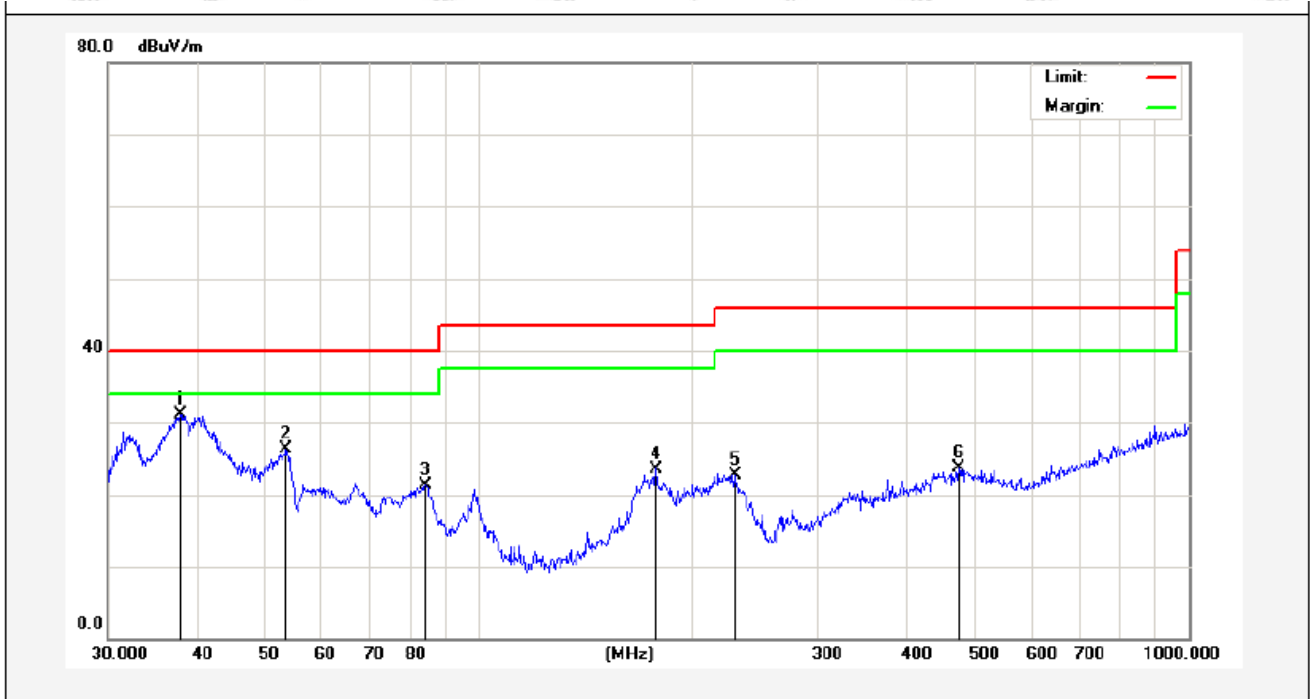
(Between 30MHz -1000 MHz)

Job No.:	SZAWW181222002-01	Polarization:	Horizontal
Standard:	FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.5°C/53%RH
Test Mode:	Mode 1	Distance:	3m



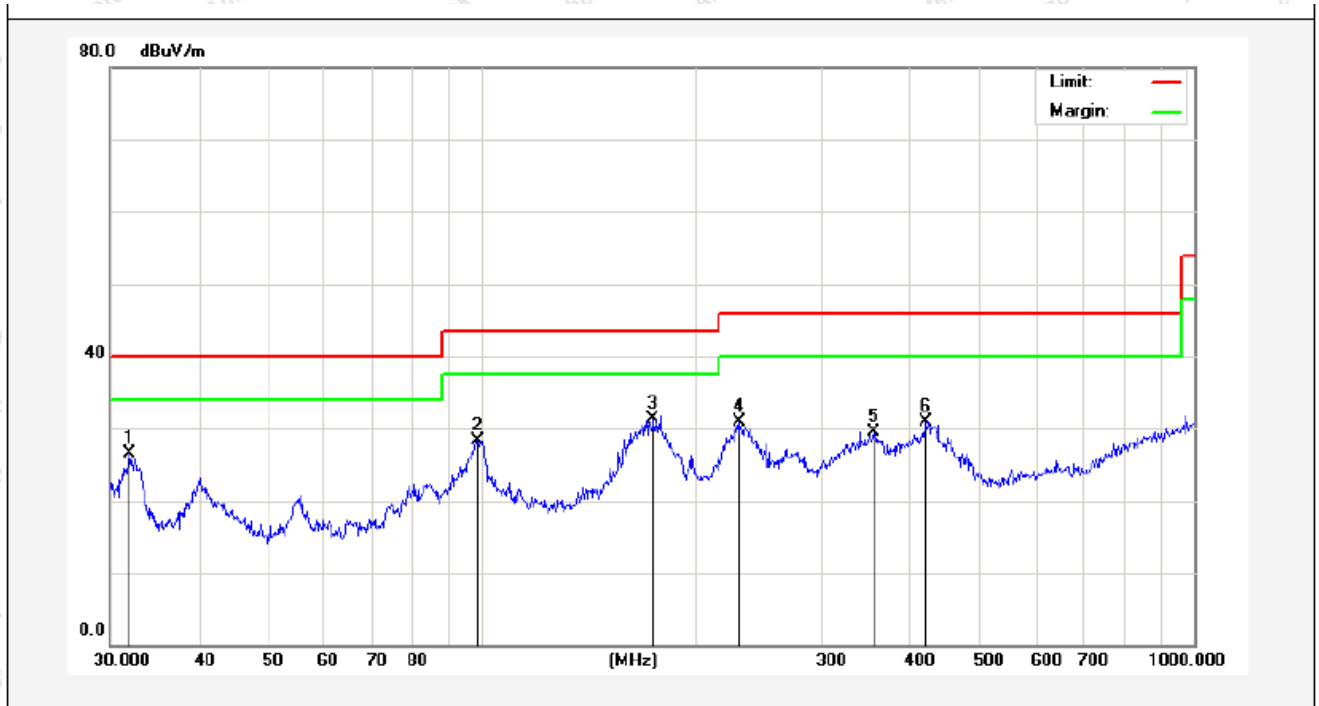
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.0667	42.57	-17.94	24.63	40.00	-15.37	QP	300	0	
2	54.6429	39.20	-17.71	21.49	40.00	-18.51	QP	300	86	
3	99.1797	51.39	-21.84	29.55	43.50	-13.95	QP	300	195	
4	164.9075	51.04	-21.22	29.82	43.50	-13.68	QP	300	257	
5	228.4904	49.75	-19.54	30.21	46.00	-15.79	QP	300	296	
6	432.5457	43.90	-12.27	31.63	46.00	-14.37	QP	300	360	

Job No.:	SZAWW181222002-01	Polarization:	Vertical
Standard:	FCC PART15 C _3m	Power Source:	AC 120V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.5°C/53%RH
Test Mode:	Mode 1	Distance:	3m



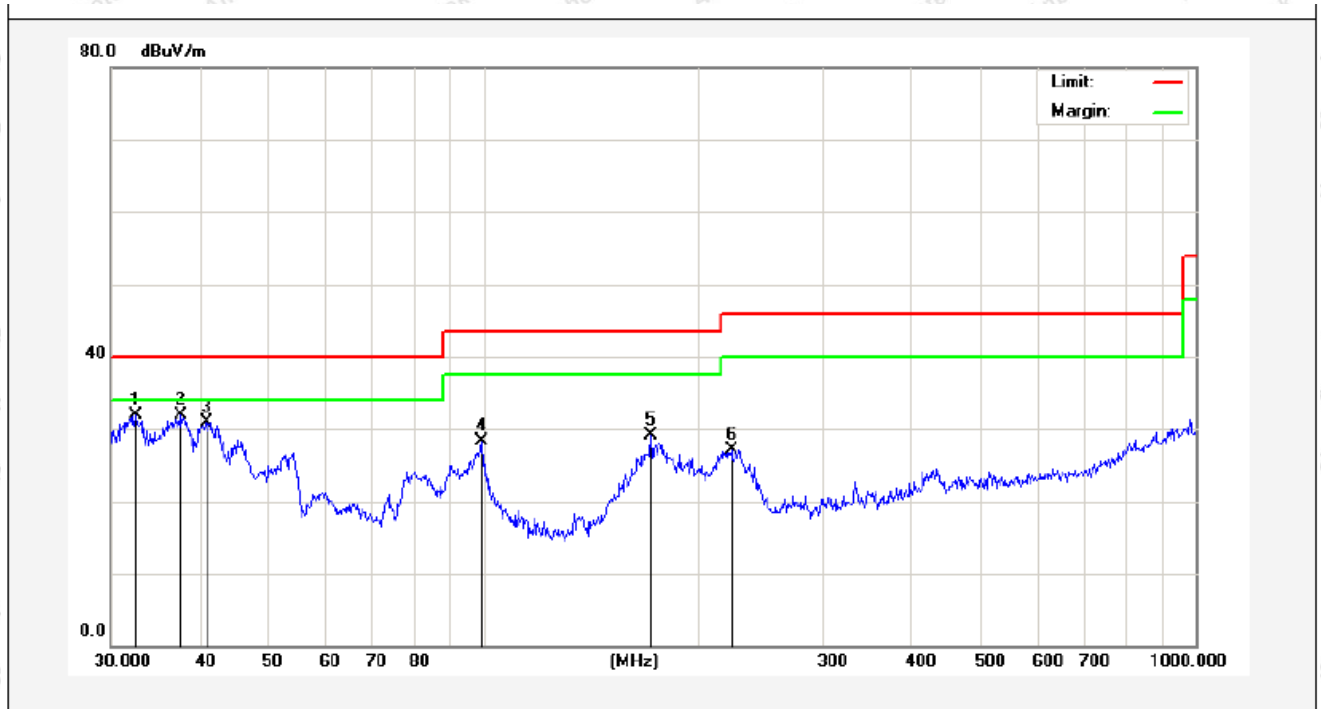
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.9450	45.66	-14.50	31.16	40.00	-8.84	QP	300	0	
2	53.5052	42.95	-16.68	26.27	40.00	-13.73	QP	300	74	
3	84.1100	40.57	-19.27	21.30	40.00	-18.70	QP	300	156	
4	177.5092	40.63	-17.03	23.60	43.50	-19.90	QP	300	211	
5	229.2931	37.68	-14.93	22.75	46.00	-23.25	QP	300	296	
6	473.8347	35.35	-11.72	23.63	46.00	-22.37	QP	300	360	

Job No.:	SZAWW181222002-01	Polarization:	Horizontal
Standard:	FCC PART15 C _3m	Power Source:	AC 240V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.5°C/53%RH
Test Mode:	Mode 1	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	31.9546	44.50	-17.97	26.53	40.00	-13.47	QP	300	0	
2	98.4866	50.31	-21.91	28.40	43.50	-15.10	QP	300	74	
3	173.8135	51.95	-20.67	31.28	43.50	-12.22	QP	300	125	
4	230.0985	50.26	-19.40	30.86	46.00	-15.14	QP	300	196	
5	354.1831	43.84	-14.31	29.53	46.00	-16.47	QP	300	257	
6	420.5803	43.31	-12.38	30.93	46.00	-15.07	QP	300	360	

Job No.:	SZAWW181222002-01	Polarization:	Vertical
Standard:	FCC PART15 C _3m	Power Source:	AC 240V, 60Hz for adapter
Test item:	Radiation Test	Temp.(C)/Hum.(%RH):	24.5°C/53%RH
Test Mode:	Mode 1	Distance:	3m



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.5198	48.73	-16.81	31.92	40.00	-8.08	QP	300	0	
2	37.6798	46.58	-14.63	31.95	40.00	-8.05	QP	300	74	
3	40.9881	44.53	-13.67	30.86	40.00	-9.14	QP	300	125	
4	99.5281	44.12	-15.81	28.31	43.50	-15.19	QP	300	196	
5	171.9946	46.47	-17.42	29.05	43.50	-14.45	QP	300	257	
6	222.9502	42.30	-15.20	27.10	46.00	-18.90	QP	300	360	

5. Antenna Requirement

5.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard

5.2. Antenna Connected Construction

The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.

----- End of Report -----