

FCC Test Report

Client Name : Mei Shun He Electronic Limited

Client Address : 301, 8th Building, No.69 Xikeng Road, Xikeng
Community, Fucheng Street, Longhua
District, 518110, Shenzhen City, China

Product Name : Power Bank with Docking Station

Report Date : Aug. 22, 2022



Shenzhen Anbotek Compliance Laboratory Limited

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant : Mei Shun He Electronic Limited
Manufacturer : Mei Shun He Electronic Limited
Product Name : Power Bank with Docking Station
Model No. : TR015001, LIM-10PBDS-001, LIM-10PBDS-002, TR307, PB059, TR338
Trade Mark : N.A
Rating(s) : Please refer to page 8
Test Standard(s) : **FCC Part15 Subpart C, Paragraph 15.209**
Test Method(s) : **ANSI C63.10: 2020**

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 Receipt

Jun. 06, 2022

Date of Test

Jun. 06~15 2022

Prepared By



(TuTu Hong)

Approved & Authorized Signer



(Kingkong Jin)



1. General Information

1.1. Client Information

Applicant	:	Mei Shun He Electronic Limited
Address	:	301, 8th Building, No.69 Xikeng Road, Xikeng Community, Fucheng Street, Longhua District, 518110, Shenzhen City, China
Manufacturer	:	Mei Shun He Electronic Limited
Address	:	301, 8th Building, No.69 Xikeng Road, Xikeng Community, Fucheng Street, Longhua District, 518110, Shenzhen City, China
Factory	:	Mei Shun He Electronic Limited
Address	:	301, 8th Building, No.69 Xikeng Road, Xikeng Community, Fucheng Street, Longhua District, 518110, Shenzhen City, China

1.2. Description of Device (EUT)

Product Name	:	Power Bank with Docking Station	
Model No.	:	TR015001, LIM-10PBDS-001, LIM-10PBDS-002, TR307, PB059, TR338 (Note: These are the models of the Suit device which consists of Wall Adapter, Power Bank and Docking Station. Power Bank with Docking Station for model no. TR015001, LIM-10PBDS-001, LIM-10PBDS-002, Three models are identical with each other except for model number. Wall Adapter for model no. TR307; Power Bank for model no. PB059; Docking Station for model no. TR338 so we prepare "TC015001" for test only.)	
Trade Mark	:	N.A	
Test Power Supply	:	AC 120V, 60Hz for adapter	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)	
Product Description	:	Operation Frequency:	110.1-205KHz
	:	Modulation Type:	FSK
	:	Antenna Type:	Inductive loop coil Antenna
	:	Antenna Gain(Peak):	0 dBi (Provided by customer)
	:	Adapter:	Input: AC 120V/60Hz Output: 5V= 2A
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

Mobile phone	:	I Phone 11
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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	WPT Mode
Mode 2	WPT Mode with Docking Station

For Conducted Emission	
Final Test Mode	Description
Mode 1	WPT Mode
Mode 2	WPT Mode with Docking Station

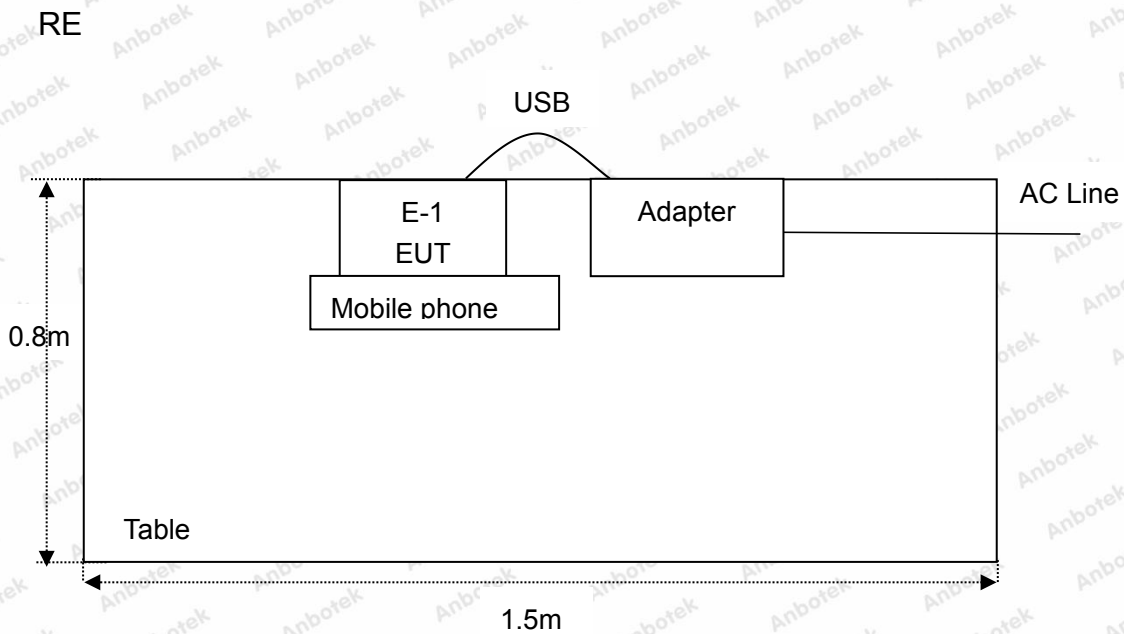
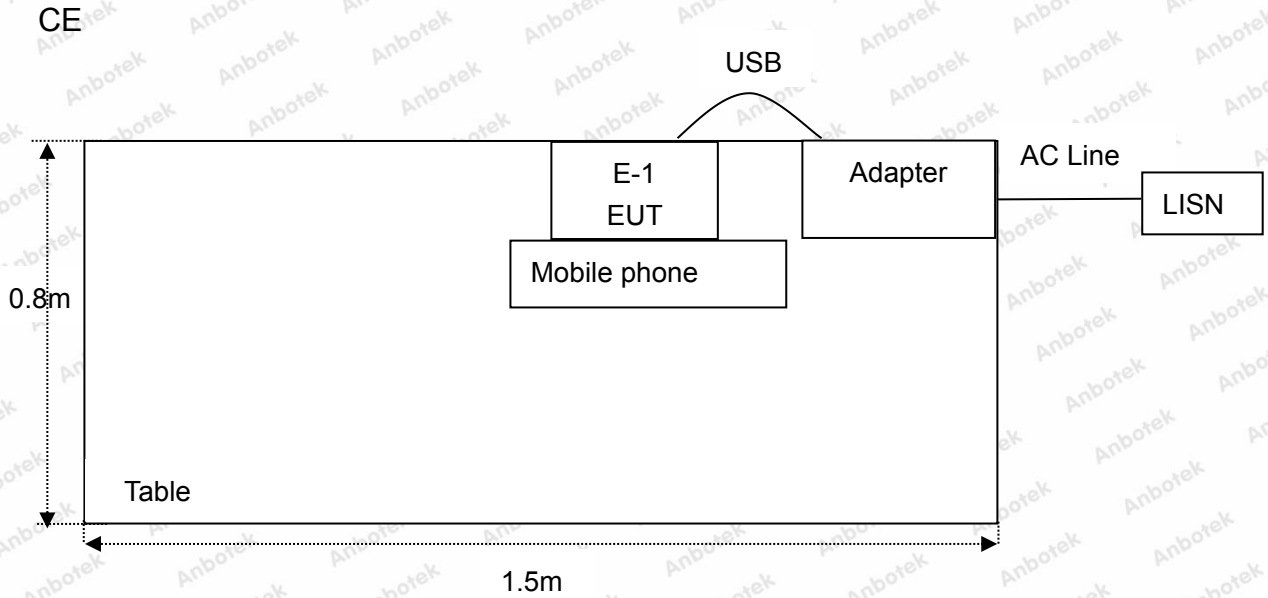
For Radiated Emission	
Final Test Mode	Description
Mode 1	WPT Mode
Mode 2	WPT Mode with Docking Station

Note: (1)Test channel is 0.1275MHz.

(2) All the situation(full load, half load and empty load) has been tested,only the worst situation (full load 10W) was recorded in the report.



1.5. Description Of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul 05, 2021	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 22, 2021	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 22, 2021	1 Year
4.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2021	1 Year
5.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 22, 2021	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	Oct. 22, 2021	1 Year
7.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Oct. 22, 2021	2 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 22, 2021	2 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 22, 2021	2 Year
10.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Oct. 22, 2021	2 Year
11.	Pre-amplifier	SONOMA	310N	186860	Oct. 22, 2021	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	Oct. 22, 2021	1 Year
14.	Power Sensor	DAER	RPR3006W	15100041SN045	Oct. 22, 2021	1 Year
15.	Power Sensor	DAER	RPR3006W	15100041SN046	Oct. 22, 2021	1 Year
16.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 22, 2021	1 Year
17.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 22, 2021	1 Year
18.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 22, 2021	1 Year
19.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2021	1 Year
20.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 22, 2021	1 Year



1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

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.

ISED-Registration No.: 8058A

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.

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

Rating(s) : For model no.TR015001, LIM-10PBDS-001, LIM-10PBDS-002
 Input: 12V== 3.67A (with DC 3.7V, 1000mAh Battery inside)
 wireless output power: 5W/7.5W/10W MAX
 For model no.TR307
 Input:110-240VAC,50/60Hz,1.6A
 Output:12VDC/3.67A 44W
 For model no.PB059
 Input (Type-C1):5VDC/3A,9VDC/2A,12VDC/1.5A
 Output:Type-C1:5VDC/3A,9VDC/2A,12VDC/1.5A (18W Max.)
 USB-A1:5VDC/2.4A 12W
 USB-A2:5VDC/3A,9VDC/2A,12VDC/1.5A (18W Max.)
 Wireless:5W/7.5W/10W
 Total Output Power:18W Max.
 Battery Rating: 10000mAh, 3.7Vdc, 37Wh
 For model no.TR338
 Input (Type-C3):12VDC/3.67A
 Output:Type-C1:5VDC/3A,9VDC/2.22A,12VDC/1.67A (20W Max.)
 Type-C2:5VDC/3A,9VDC/2.22A,12VDC/1.67A (20W Max.)
 USB-A1:5VDC/3A,9VDC/2A,12VDC/1.5A (18W Max.)
 USB-A2:5VDC/3A,9VDC/2A,12VDC/1.5A (18W Max.)
 USB-A1+Type-C1:5VDC/3A 15W Max.
 USB-A2+Type-C2:5VDC/3A 15W Max.



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



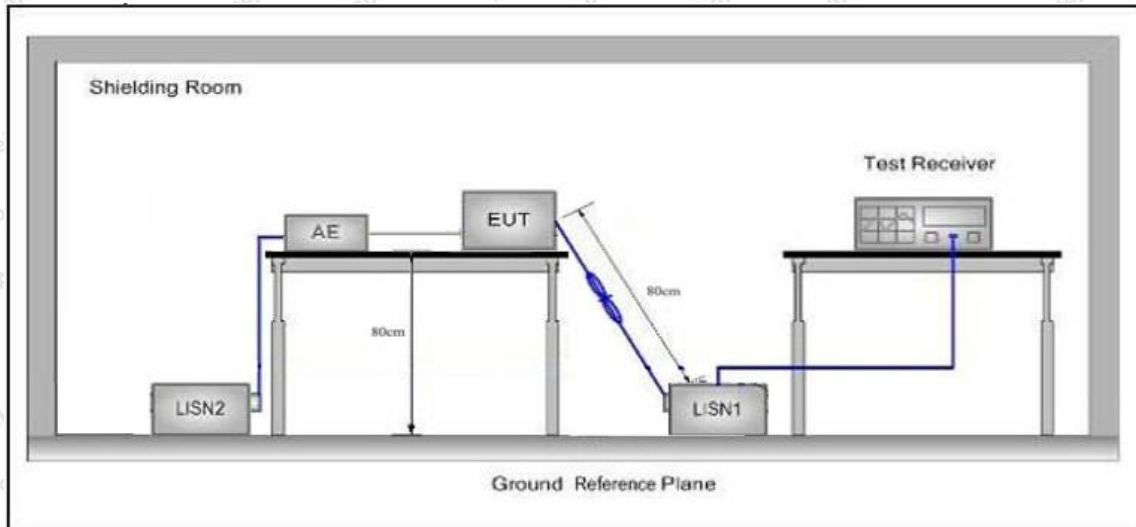
3. Conducted Emission Test

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 C63.10-2020 on Conducted Emission Measurement.

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

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



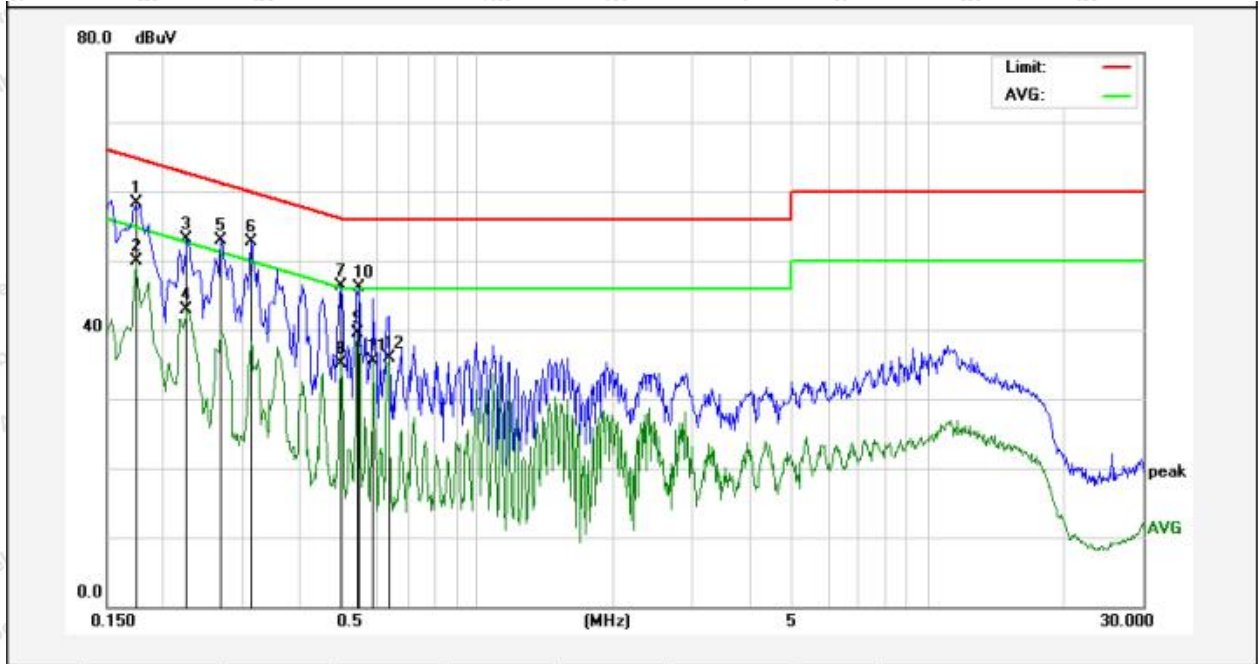
3.4. Test Data

Only the worst case data was showed in the report, please to see the following pages.



Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Live Line
 Tem.: 22.8°C Hum.: 47%

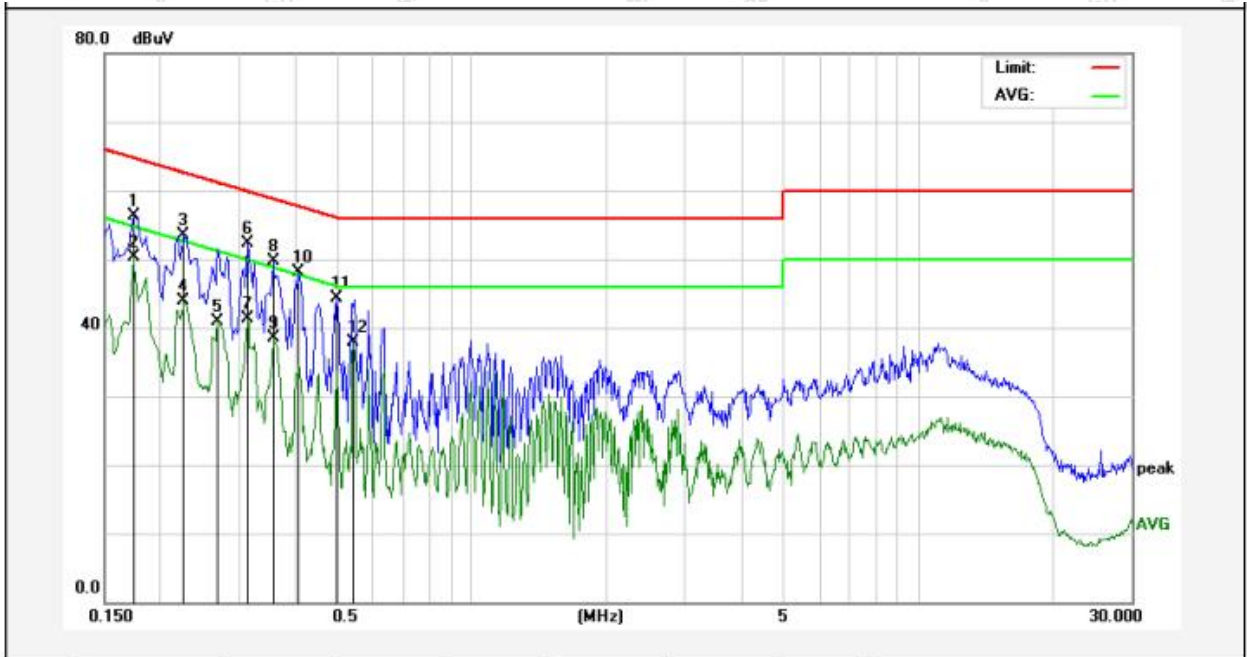


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1740	58.28	0.12	58.40	64.76	-6.36	QP	
2	0.1740	49.70	0.12	49.82	54.76	-4.94	AVG	
3	0.2260	52.96	0.12	53.08	62.59	-9.51	QP	
4	0.2260	42.81	0.12	42.93	52.59	-9.66	AVG	
5	0.2700	52.80	0.13	52.93	61.12	-8.19	QP	
6	0.3140	52.64	0.13	52.77	59.86	-7.09	QP	
7	0.4980	46.19	0.15	46.34	56.03	-9.69	QP	
8	0.4980	34.95	0.15	35.10	46.03	-10.93	AVG	
9	0.5420	39.33	0.15	39.48	46.00	-6.52	AVG	
10	0.5460	45.87	0.15	46.02	56.00	-9.98	QP	
11	0.5860	35.34	0.15	35.49	46.00	-10.51	AVG	
12	0.6340	35.69	0.15	35.84	46.00	-10.16	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
 Operating Condition: Mode 1
 Test Specification: AC 120V, 60Hz for adapter
 Comment: Neutral Line
 Tem.: 22.8°C Hum.: 47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1740	56.28	0.12	56.40	64.76	-8.36	QP	
2	0.1740	50.20	0.12	50.32	54.76	-4.44	AVG	
3	0.2260	53.46	0.12	53.58	62.59	-9.01	QP	
4	0.2260	43.81	0.12	43.93	52.59	-8.66	AVG	
5	0.2700	40.81	0.13	40.94	51.12	-10.18	AVG	
6	0.3140	52.14	0.13	52.27	59.86	-7.59	QP	
7	0.3140	41.15	0.13	41.28	49.86	-8.58	AVG	
8	0.3580	49.55	0.12	49.67	58.77	-9.10	QP	
9	0.3580	38.47	0.12	38.59	48.77	-10.18	AVG	
10	0.4100	47.93	0.11	48.04	57.65	-9.61	QP	
11	0.4980	44.19	0.15	44.34	56.03	-11.69	QP	
12	0.5420	37.83	0.15	37.98	46.00	-8.02	AVG	



4. Radiation Spurious Emission

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
	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

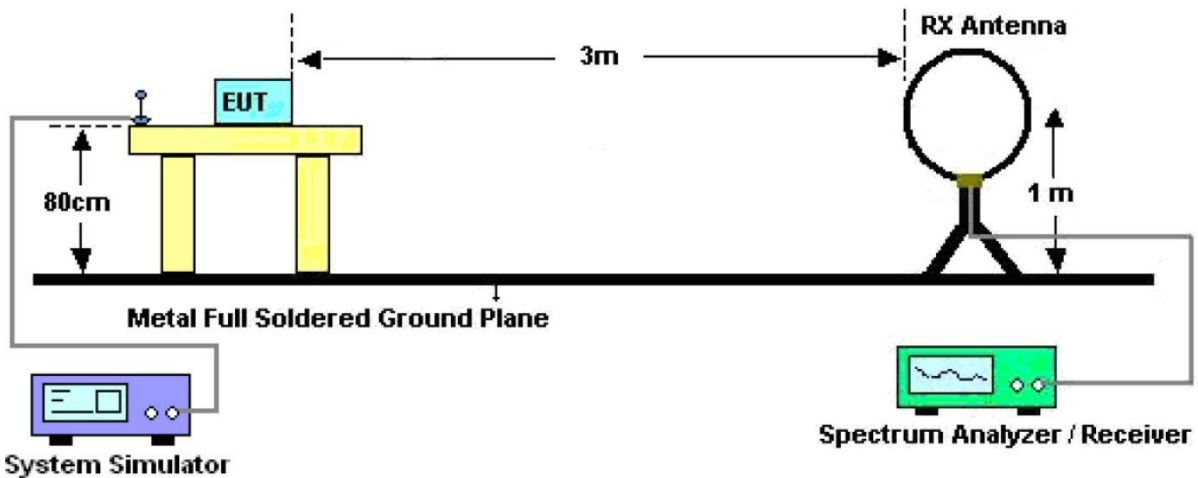


Figure 1. Below 30MHz



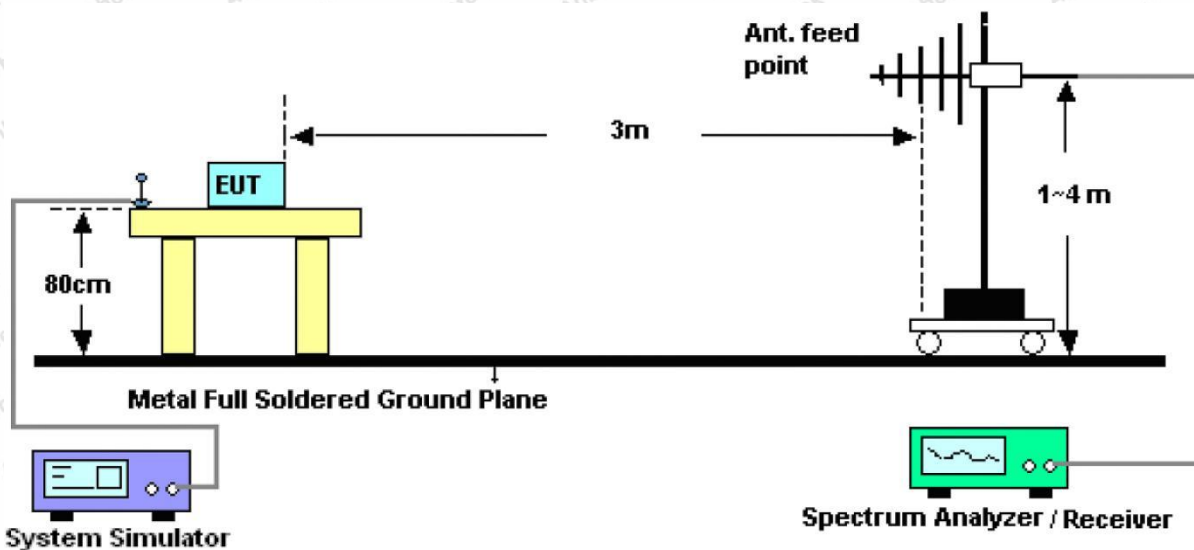


Figure 2. 30MHz to 1GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m 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

Only the worst case data was showed in the report, please to see the following pages.

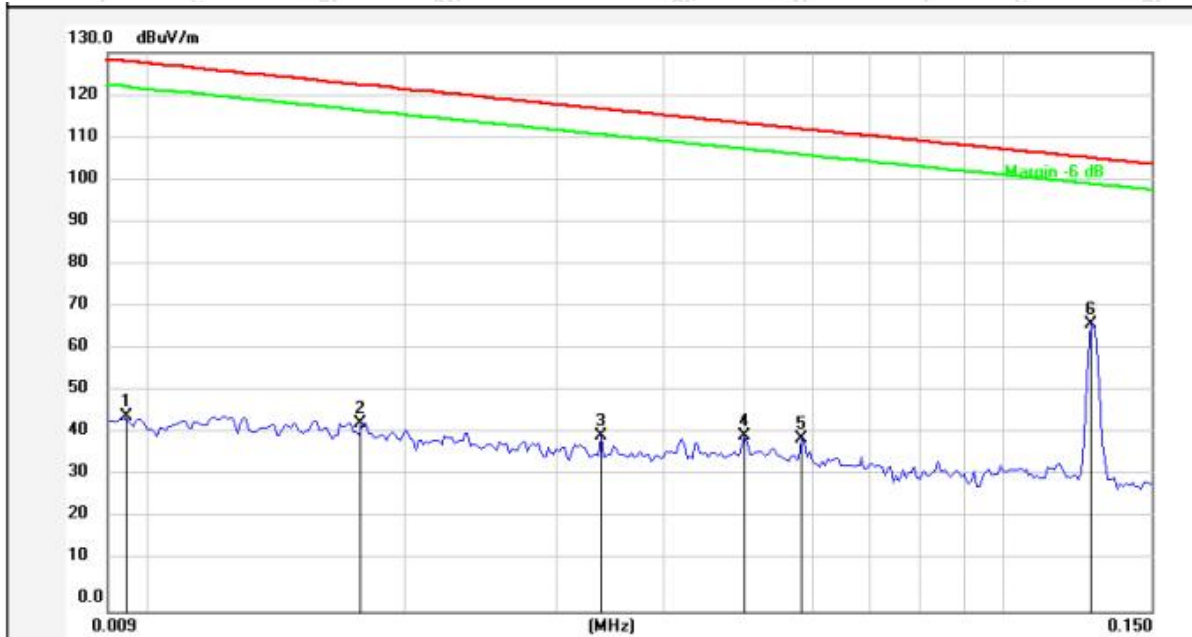
Note: The data is in TX mode, and this is the worst mode.



Test Results

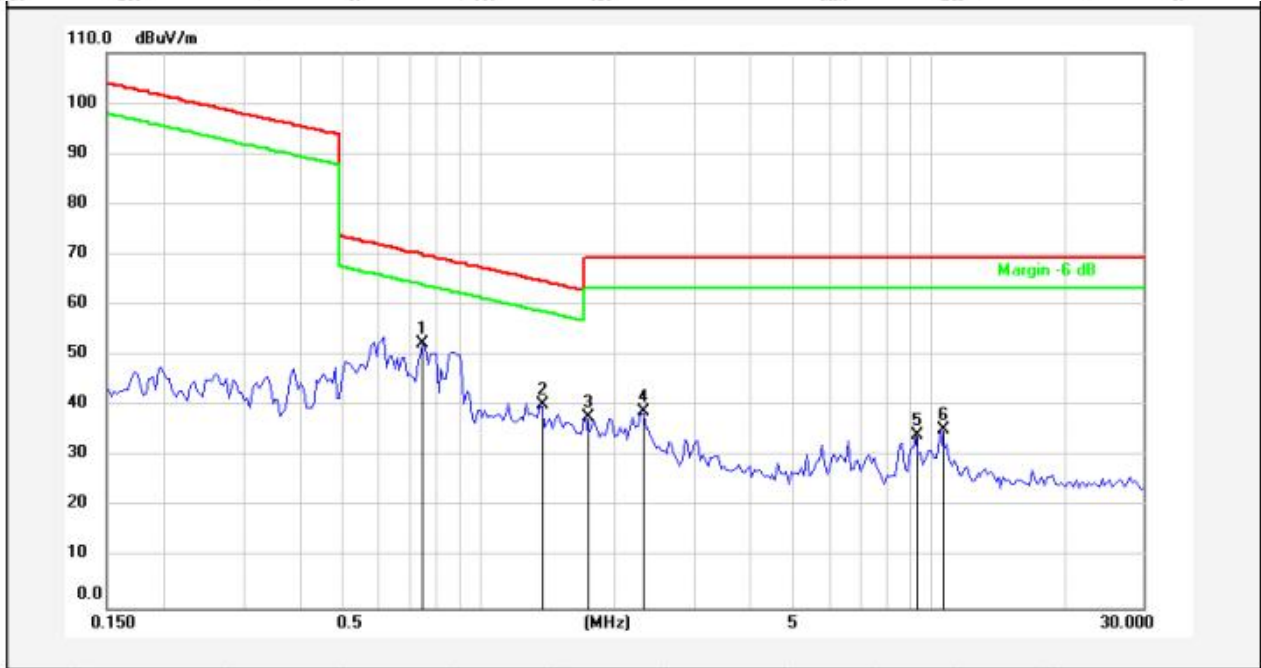
(Between 9KHz – 30MHz)

Standard: FCC PART15 C _3m **Power Source:** AC 120V, 60Hz for adapter
Test item: Radiation Test **Temp.(C)/Hum.(%RH):** 22.8°C/48%RH
Test Mode: Mode 1 **Distance:** 3m



No.	Freq. (MHz)	Reading (dBUV)	Factor ()	Result (dBUV/m)	Limit (dBUV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0094	25.07	20.11	45.18	128.03	-82.85	AV			
2	0.0177	23.52	20.15	43.67	122.55	-78.88	AV			
3	0.0340	20.08	20.55	40.63	116.90	-76.27	AV			
4	0.0500	20.45	20.42	40.87	113.56	-72.69	AV			
5	0.0584	19.91	20.36	40.27	112.21	-71.94	AV			
6	0.1275	46.43	20.34	66.77	105.45	-38.68	AV			





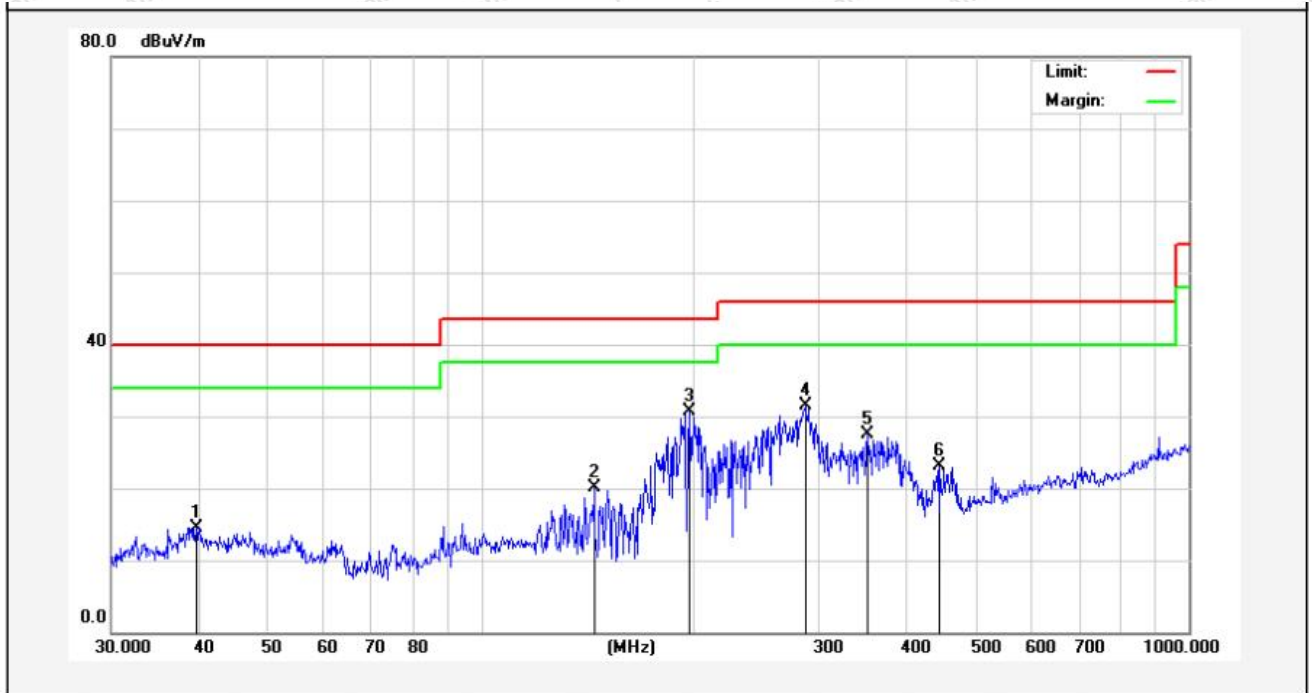
No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.7549	32.08	20.25	52.33	70.06	-17.73	QP			
2	1.3702	20.04	20.26	40.30	64.89	-24.59	QP			
3	1.7391	17.43	20.27	37.70	69.50	-31.80	QP			
4	2.2968	18.64	20.29	38.93	69.50	-30.57	QP			
5	9.3518	13.78	20.50	34.28	69.50	-35.22	QP			
6	10.6763	14.91	20.52	35.43	69.50	-34.07	QP			

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)

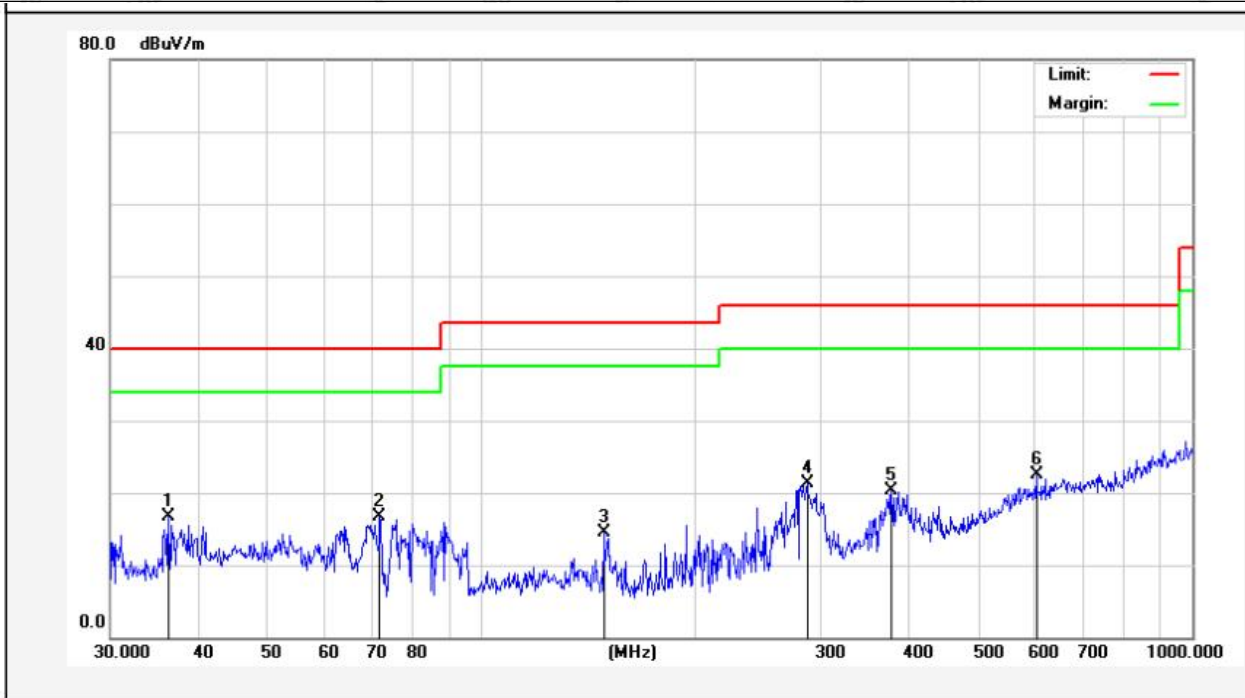
Standard:	FCC PART15 C _3m	Polarization:	Horizontal
Test item:	Radiation Test	Power Source:	AC 120V, 60Hz for adapter
Test Mode:	Mode 1	Temp.(C)/Hum.(%RH):	23.4°C/50%RH
Distance:	3m		



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	39.5756	30.83	-16.24	14.59	40.00	-25.41	QP			
2	144.3348	42.99	-22.97	20.02	43.50	-23.48	QP			
3	196.5098	53.14	-22.48	30.66	43.50	-12.84	QP			
4	286.9823	49.82	-18.29	31.53	46.00	-14.47	QP			
5	351.7078	43.53	-16.00	27.53	46.00	-18.47	QP			
6	444.8514	38.74	-15.54	23.20	46.00	-22.80	QP			



Standard:	FCC PART15 C_3m	Polarization:	Vertical
Test item:	Radiation Test	Power Source:	AC 120V, 60Hz for adapter
Test Mode:	Mode 1	Temp.(C)/Hum.(%RH):	23.4°C/50%RH
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	36.2541	33.21	-16.49	16.72	40.00	-23.28	QP			
2	71.8320	36.74	-19.94	16.80	40.00	-23.20	QP			
3	148.4410	36.65	-22.10	14.55	43.50	-28.95	QP			
4	286.9823	37.96	-16.69	21.27	46.00	-24.73	QP			
5	377.2591	34.97	-14.70	20.27	46.00	-25.73	QP			
6	603.5392	33.07	-10.53	22.54	46.00	-23.46	QP			



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 antenna jack or electrical connector is prohibited.

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.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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

