FCC TEST REPORT

Client Name	:	Forward Industries
Address	:	105 South Narcissus Avenue, Suite 412, West Palm Beach, FL 33401, USA
Product Name	:	Side Table
Date	:	Jul. 28, 2020

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant	:	Forward Industries
Manufacturer	:	DG BLUEMAN TECHNOLOGY CO., LTD.
Product Name	:	Side Table
Model No.	:	KBBM1111, KBBM1112, KBBM1113, KBBM1114
Trade Mark	:	N.A.
Rating(s)	:	Input: DC 18V, 3.5A (via adapter input: AC 100-240V, 50/60Hz, 1.5A; output: DC 18V, 3.5A) USB Output: DC 5V, 2.4A Wireless Output: 5W Max
Test Standard(s)	**:**	**FCC Part15 Subpart C 2019, 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 Receipt	Jul. 02, 2020
Date of Test	Jul. 02~17, 2020
Prepared By	(Engineer / Dolly Mo)
Reviewer	(Supervisor / Bibo Zhang)
Approved & Authorized Signer	(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Forward Industries
Address	:	105 South Narcissus Avenue, Suite 412, West Palm Beach, FL 33401, USA
Manufacturer	:	DG BLUEMAN TECHNOLOGY CO., LTD.
Address	:	Room 101, No.5, Shunxing Five Road, Dajingtou, Dalang Town, Dongguan City, Guangdong Province
Factory	:	DG BLUEMAN TECHNOLOGY CO., LTD.
Address	:	Room 101, No.5, Shunxing Five Road, Dajingtou, Dalang Town, Dongguan City, Guangdong Province

1.2. Description of Device (EUT)

Product Name	:	Side Table	
Model No.	:	KBBM1111, KBBM1112, KBBM1113, KBBM1114 (All samples are with same inside structure and PCBA except the appearance color, so we prepare "KBBM1114" for test only).	
Trade Mark	:	N.A.	
Test Power Supply	:	AC 120V, 60Hz for adapter / AC 240V, 60Hz for adapter	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-1(Engineering Sample)	
Product Description	:	Operation Frequency:	BT: 2402~2480MHz Wireless charger: 110.1-205KHz
		Transfer Rate:	BT: 1/2/3 Mbits/s
		Number of Channel:	BT: 79 Channels
		Modulation Type:	BT: GFSK, π/4-DQPSK, 8-DPSK Wireless charger: ASK
		Antenna Type:	BT: PCB Antenna Wireless charger: Inductive loop coil Antenna
		Antenna Gain(Peak):	BT: 0.5 dBi Wireless charger: 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 Wireless charger module.			

1.3. Auxiliary Equipment Used During Test

Adapter A	:	Manufacturer: SHENZHEN FUJIA APPLIANCE CO., LTD.
		M/N: FJ-SW20171803500D Input: 100-240V~ 50/60Hz, 1.5A Max Output: DC 18V, 3.5A, 63.0W
Adapter B	:	Manufacturer: Shenzhen QiXin Electronics Co., Ltd.
		M/N: QX72W180350D2 Input: 100-240V~ 50/60Hz, 1.5A Output: DC 18V, 3.5A, 63.0W
Adapter C	:	Manufacturer: Shenzhen Xinspower Technology Co., Ltd
		M/N: A653-1803500D Input: 100-240V~ 50/60Hz, 1.5A Output: DC 18V, 3.5A, 63.0W

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	Full load, Wireless charger module

For Conducted Emission	
Final Test Mode	Description
Mode 1	Full load, Wireless charger module

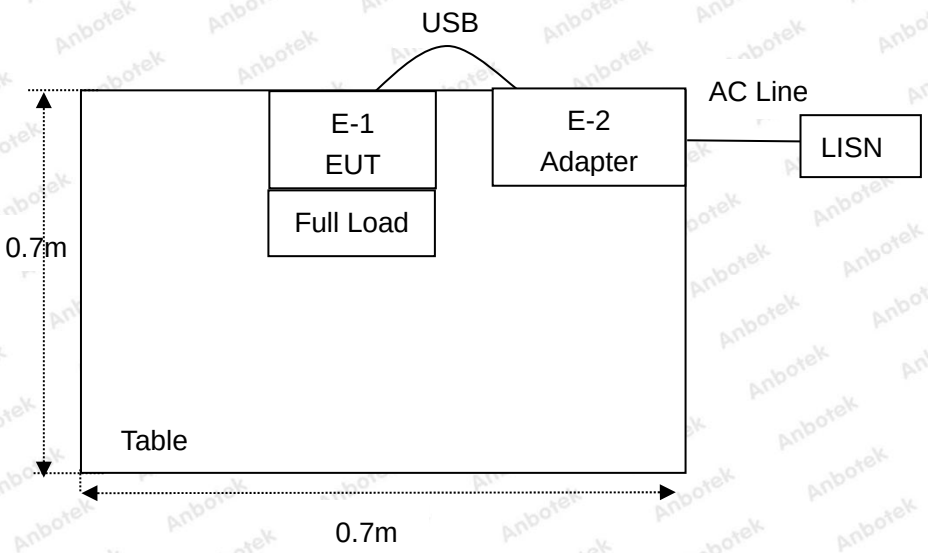
For Radiated Emission	
Final Test Mode	Description
Mode 1	Full load, Wireless charger module

Note: (1)Test channel is 0.1439MHz.

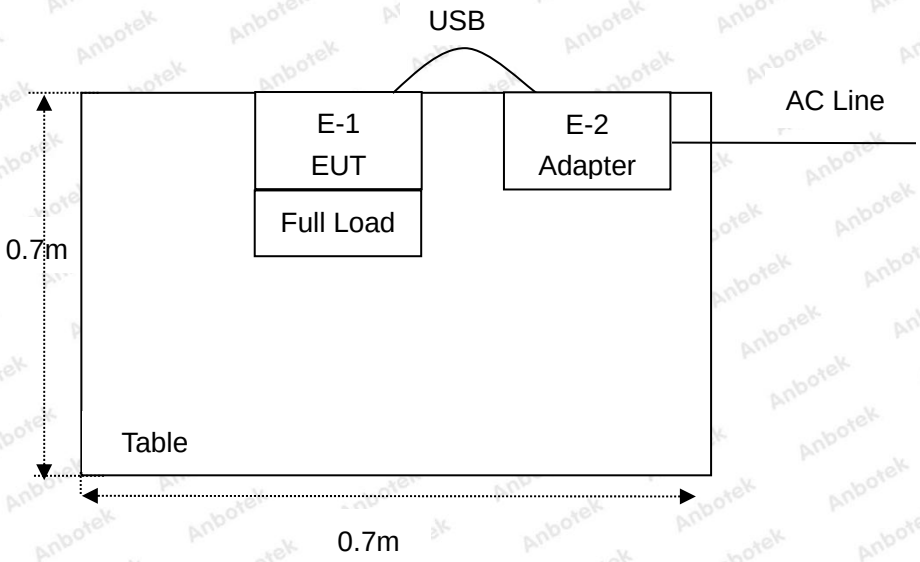
(2)All the situation(full load, half load and empty load) has been tested,only the worst situation (full load) was recorded in the report.

1.5. Description Of Test Setup

CE



RE



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. 04, 2019	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI3	101604	Nov. 04, 2019	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Nov. 04, 2019	1 Year
4.	MAX Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 04, 2019	1 Year
5.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Nov. 04, 2019	1 Year
6.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 01, 2019	1 Year
7.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 01, 2019	1 Year
8.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 01, 2019	1 Year
9.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Nov. 01, 2019	1 Year
10.	Pre-amplifier	SONOMA	310N	186860	Nov. 04, 2019	1 Year
11.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
12.	RF Test Control System	YIHENG	YH3000	2017430	Nov. 04, 2019	1 Year
13.	Power Sensor	DAER	RPR3006W	15I00041SN045	Nov. 04, 2019	1 Year
14.	Power Sensor	DAER	RPR3006W	15I00041SN046	Nov. 04, 2019	1 Year
15.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 04, 2019	1 Year
16.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 04, 2019	1 Year
17.	Signal Generator	Agilent	E4421B	MY41000743	Nov. 04, 2019	1 Year
18.	DC Power Supply	LW	TPR-6420D	374470	Nov. 04, 2019	1 Year
19.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Nov. 04, 2019	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 registed 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, September 27, 2019.

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, March 07, 2019.

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

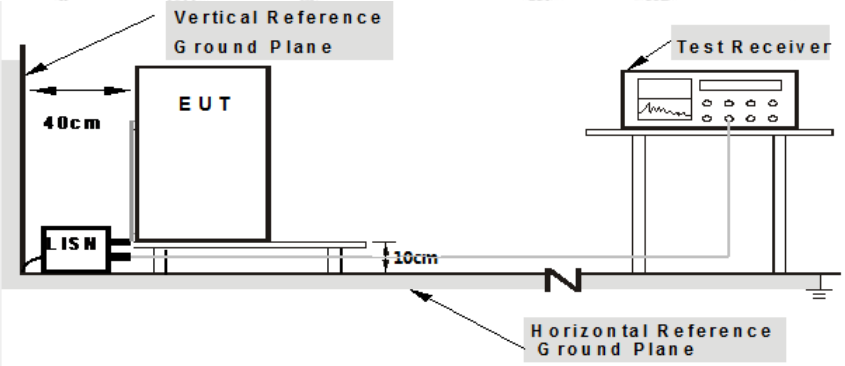
Standard Section	Test Item	Result
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS
Part 15.203	Antenna Requirement	PASS

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



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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.

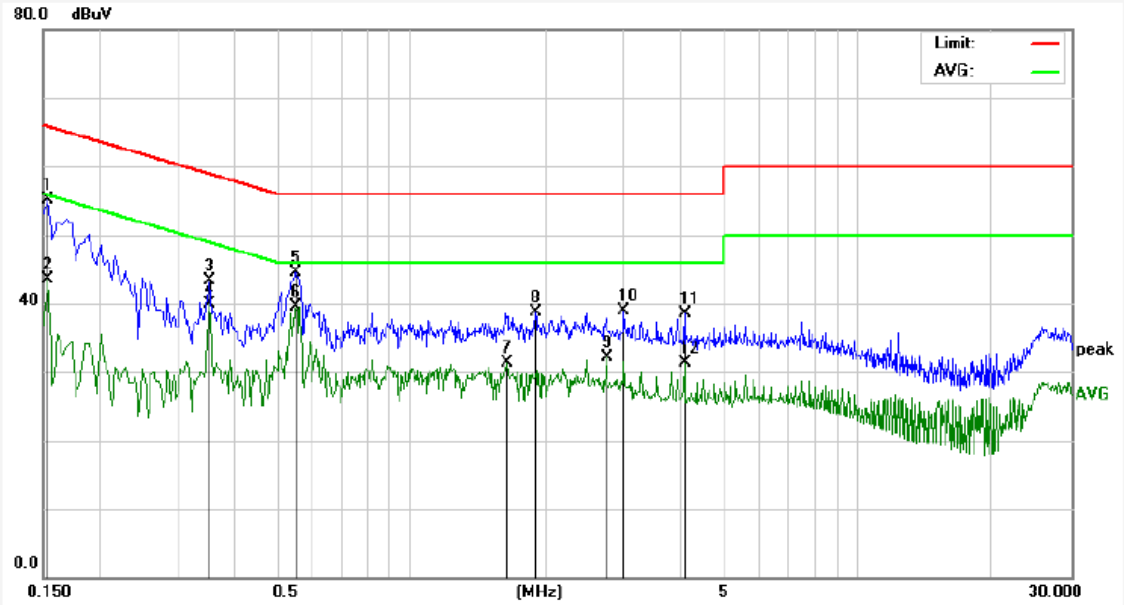
The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Please to see the following pages

Conducted Emission Test Data

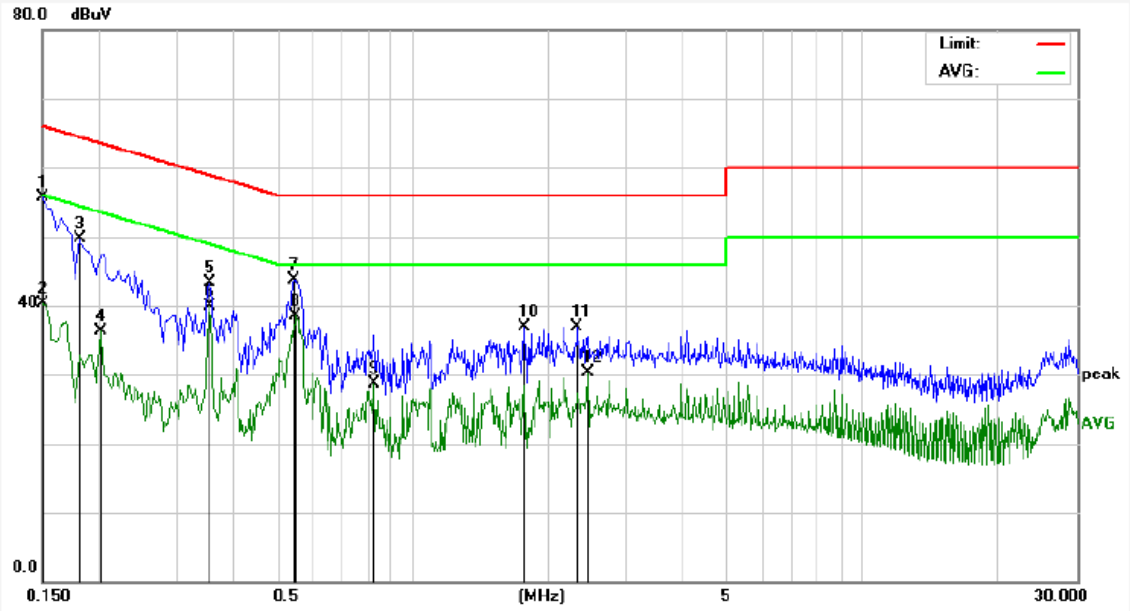
Test Site:	1# Shielded Room
Operating Condition:	Mode 1
Test Specification:	AC 120V, 60Hz for adapter
Comment:	Live Line
	Tem.: 22.5℃ Hum.: 52%
Note:	Adapter: FJ-SW20171803500D



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1539	35.15	19.90	55.05	65.78	-10.73	QP	
2	0.1539	23.63	19.90	43.53	55.78	-12.25	AVG	
3	0.3540	23.36	19.91	43.27	58.87	-15.60	QP	
4	0.3540	19.97	19.91	39.88	48.87	-8.99	AVG	
5	0.5540	24.54	20.00	44.54	56.00	-11.46	QP	
6	0.5540	19.60	20.00	39.60	46.00	-6.40	AVG	
7	1.6380	11.18	20.13	31.31	46.00	-14.69	AVG	
8	1.9020	18.53	20.14	38.67	56.00	-17.33	QP	
9	2.7460	11.99	20.15	32.14	46.00	-13.86	AVG	
10	3.0020	18.69	20.16	38.85	56.00	-17.15	QP	
11	4.0939	18.23	20.18	38.41	56.00	-17.59	QP	
12	4.0939	11.04	20.18	31.22	46.00	-14.78	AVG	

Conducted Emission Test Data

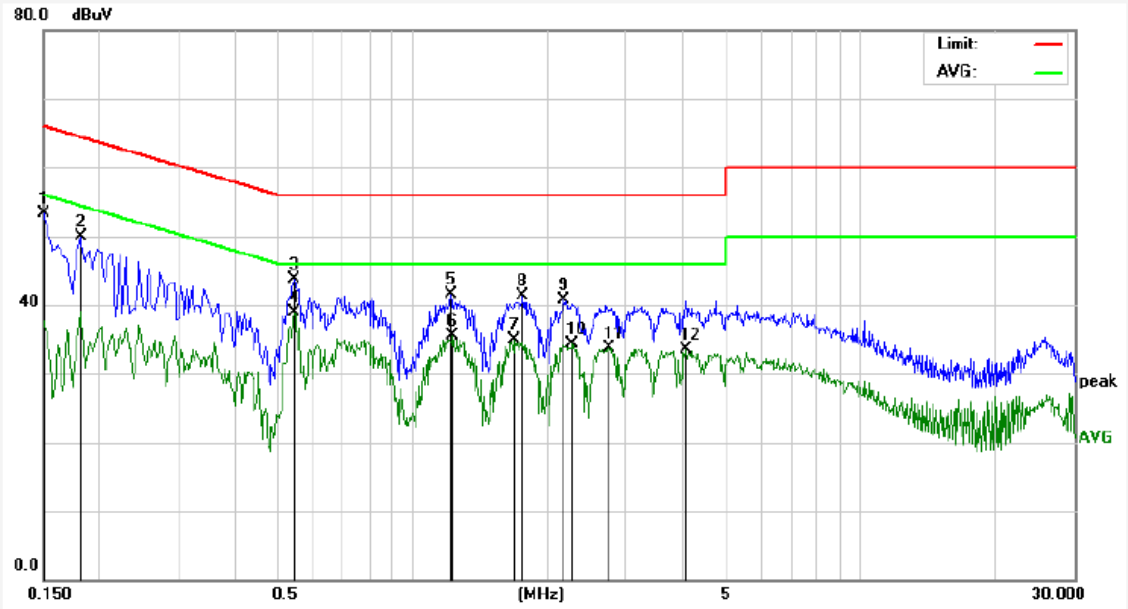
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	35.73	19.90	55.63	65.99	-10.36	QP	
2	0.1500	20.36	19.90	40.26	55.99	-15.73	AVG	
3	0.1819	29.71	19.90	49.61	64.39	-14.78	QP	
4	0.2020	16.50	19.90	36.40	53.52	-17.12	AVG	
5	0.3540	23.48	19.91	43.39	58.87	-15.48	QP	
6	0.3540	20.04	19.91	39.95	48.87	-8.92	AVG	
7	0.5460	23.81	19.99	43.80	56.00	-12.20	QP	
8	0.5500	18.59	19.99	38.58	46.00	-7.42	AVG	
9	0.8180	8.70	20.07	28.77	46.00	-17.23	AVG	
10	1.7740	16.73	20.14	36.87	56.00	-19.13	QP	
11	2.3220	16.81	20.15	36.96	56.00	-19.04	QP	
12	2.4539	10.15	20.15	30.30	46.00	-15.70	AVG	

Conducted Emission Test Data

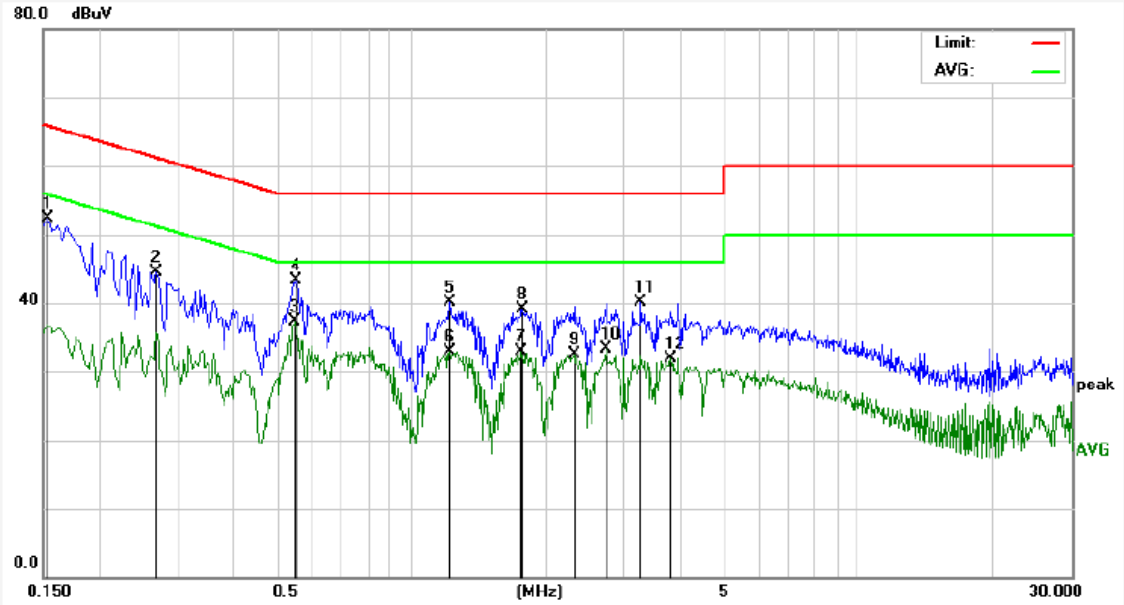
Test Site:	1# Shielded Room
Operating Condition:	Mode 1
Test Specification:	AC 240V, 60Hz for adapter
Comment:	Live Line
	Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	33.34	19.90	53.24	65.99	-12.75	QP	
2	0.1819	29.92	19.90	49.82	64.39	-14.57	QP	
3	0.5460	23.78	19.99	43.77	56.00	-12.23	QP	
4	0.5460	19.00	19.99	38.99	46.00	-7.01	AVG	
5	1.2220	21.39	20.12	41.51	56.00	-14.49	QP	
6	1.2300	15.47	20.12	35.59	46.00	-10.41	AVG	
7	1.6980	14.81	20.13	34.94	46.00	-11.06	AVG	
8	1.7660	21.24	20.14	41.38	56.00	-14.62	QP	
9	2.1780	20.49	20.14	40.63	56.00	-15.37	QP	
10	2.2740	14.17	20.15	34.32	46.00	-11.68	AVG	
11	2.7460	13.52	20.15	33.67	46.00	-12.33	AVG	
12	4.0900	13.27	20.18	33.45	46.00	-12.55	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1539	32.45	19.90	52.35	65.78	-13.43	QP	
2	0.2700	24.69	19.89	44.58	61.12	-16.54	QP	
3	0.5500	17.26	19.99	37.25	46.00	-8.75	AVG	
4	0.5540	23.37	20.00	43.37	56.00	-12.63	QP	
5	1.2220	20.00	20.12	40.12	56.00	-15.88	QP	
6	1.2220	12.69	20.12	32.81	46.00	-13.19	AVG	
7	1.7700	12.71	20.14	32.85	46.00	-13.15	AVG	
8	1.7740	18.92	20.14	39.06	56.00	-16.94	QP	
9	2.3179	12.37	20.15	32.52	46.00	-13.48	AVG	
10	2.7260	13.20	20.15	33.35	46.00	-12.65	AVG	
11	3.2700	19.90	20.17	40.07	56.00	-15.93	QP	
12	3.8100	11.67	20.18	31.85	46.00	-14.15	AVG	

Conducted Emission Test Data

Test Site: 1# Shielded Room

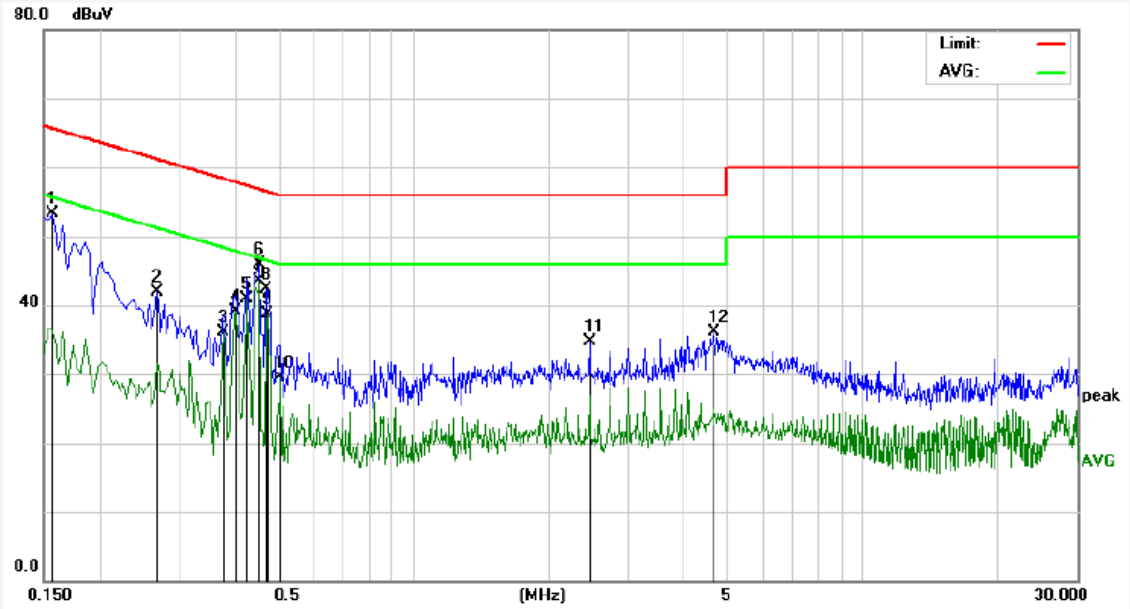
Operating Condition: Mode 1

Test Specification: AC 120V, 60Hz for adapter

Comment: Live Line

Tem.: 22.5℃ Hum.: 52%

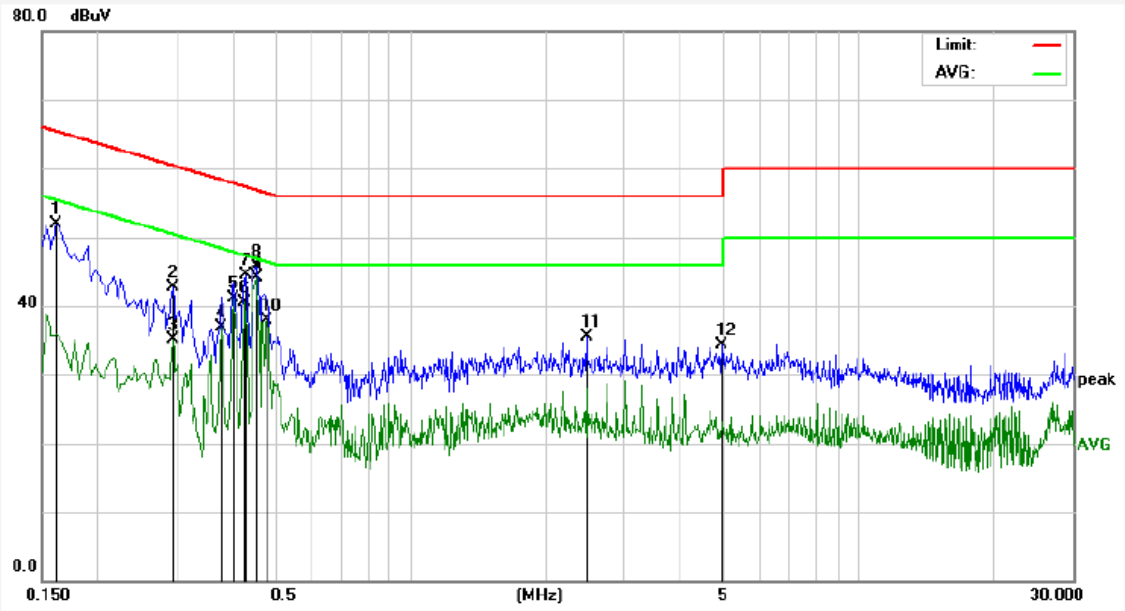
Note: Adapter: QX72W180350D2



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1580	33.35	19.90	53.25	65.56	-12.31	QP	
2	0.2700	22.05	19.89	41.94	61.12	-19.18	QP	
3	0.3780	16.22	19.93	36.15	48.32	-12.17	AVG	
4	0.4020	19.08	19.94	39.02	47.81	-8.79	AVG	
5	0.4260	20.90	19.95	40.85	47.33	-6.48	AVG	
6	0.4540	25.88	19.96	45.84	56.80	-10.96	QP	
7	0.4540	23.54	19.96	43.50	46.80	-3.30	AVG	
8	0.4700	22.39	19.97	42.36	56.51	-14.15	QP	
9	0.4740	18.70	19.97	38.67	46.44	-7.77	AVG	
10	0.5060	9.53	19.98	29.51	46.00	-16.49	AVG	
11	2.4660	14.65	20.15	34.80	56.00	-21.20	QP	
12	4.6540	15.83	20.20	36.03	56.00	-19.97	QP	

Conducted Emission Test Data

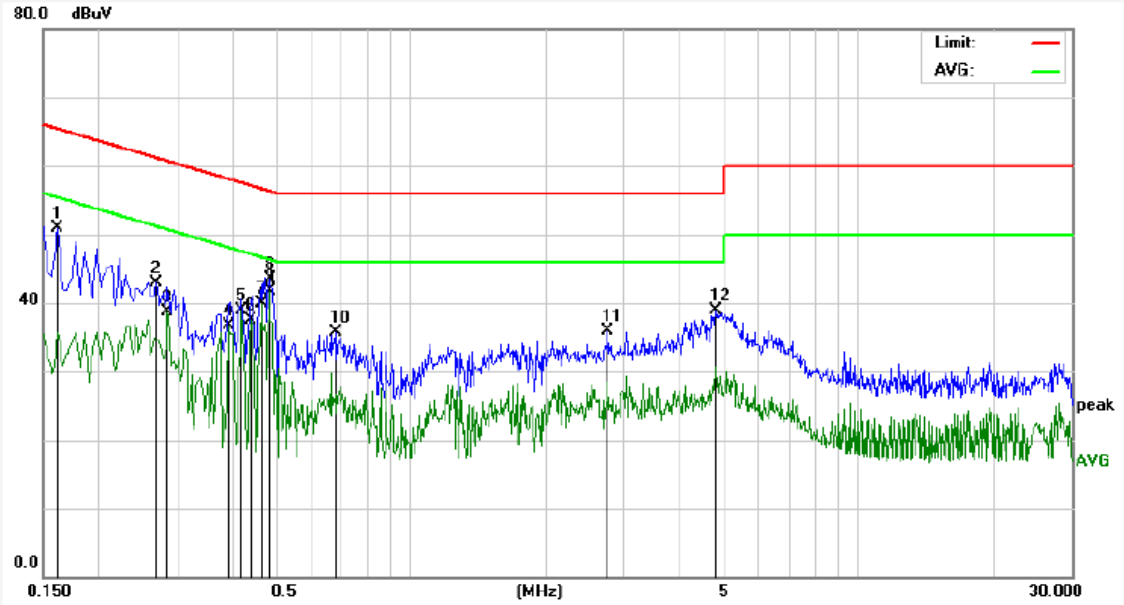
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1620	32.02	19.90	51.92	65.36	-13.44	QP	
2	0.2940	22.87	19.89	42.76	60.41	-17.65	QP	
3	0.2940	15.26	19.89	35.15	50.41	-15.26	AVG	
4	0.3780	16.99	19.93	36.92	48.32	-11.40	AVG	
5	0.4020	21.22	19.94	41.16	47.81	-6.65	AVG	
6	0.4260	20.62	19.95	40.57	47.33	-6.76	AVG	
7	0.4300	24.57	19.95	44.52	57.25	-12.73	QP	
8	0.4540	25.72	19.96	45.68	56.80	-11.12	QP	
9	0.4540	24.21	19.96	44.17	46.80	-2.63	AVG	
10	0.4780	17.91	19.97	37.88	46.37	-8.49	AVG	
11	2.4660	15.38	20.15	35.53	56.00	-20.47	QP	
12	4.9300	14.03	20.20	34.23	56.00	-21.77	QP	

Conducted Emission Test Data

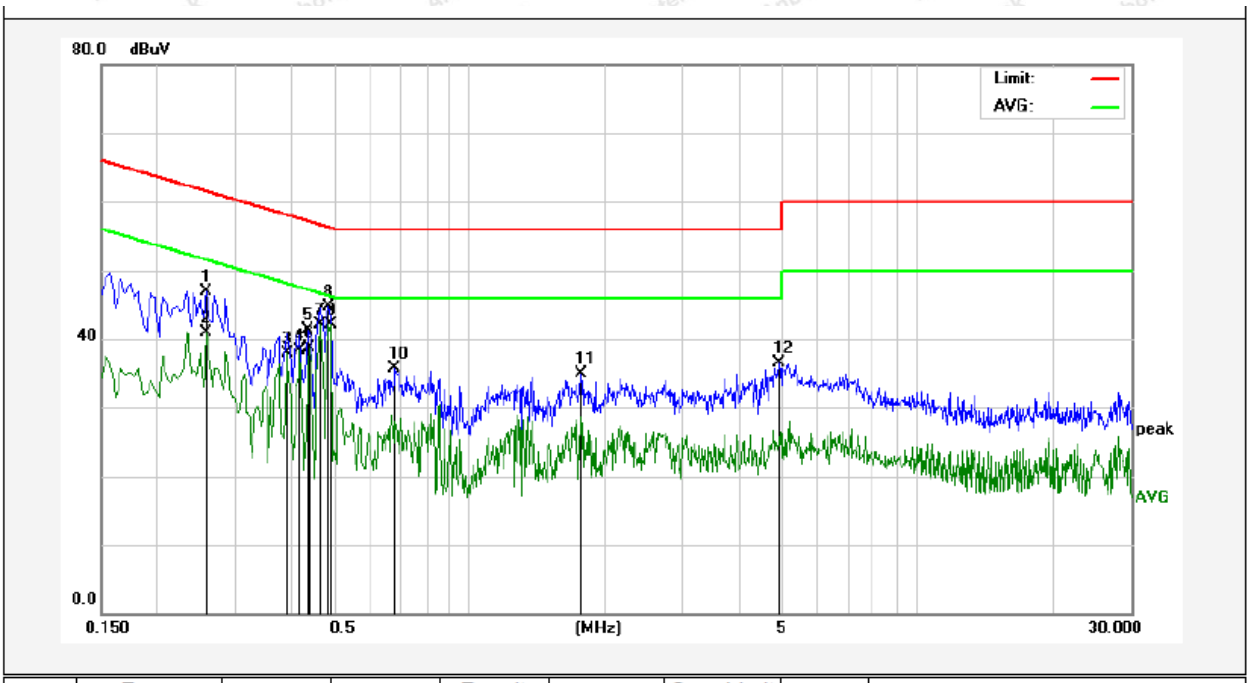
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1620	31.06	19.90	50.96	65.36	-14.40	QP	
2	0.2700	23.02	19.89	42.91	61.12	-18.21	QP	
3	0.2860	18.85	19.89	38.74	50.64	-11.90	AVG	
4	0.3899	16.72	19.93	36.65	48.06	-11.41	AVG	
5	0.4180	18.92	19.94	38.86	47.49	-8.63	AVG	
6	0.4380	17.55	19.95	37.50	47.10	-9.60	AVG	
7	0.4620	20.03	19.96	39.99	46.66	-6.67	AVG	
8	0.4820	23.61	19.97	43.58	56.30	-12.72	QP	
9	0.4820	21.70	19.97	41.67	46.30	-4.63	AVG	
10	0.6780	15.64	20.03	35.67	56.00	-20.33	QP	
11	2.7540	15.68	20.16	35.84	56.00	-20.16	QP	
12	4.8180	18.68	20.20	38.88	56.00	-17.12	QP	

Conducted Emission Test Data

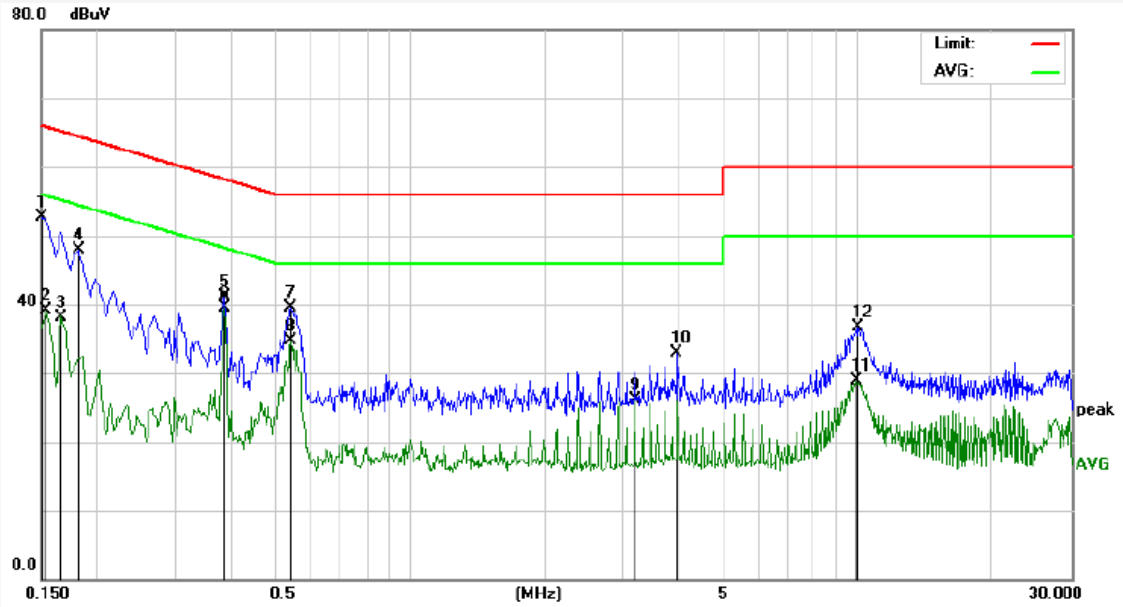
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2580	27.04	19.89	46.93	61.49	-14.56	QP	
2	0.2580	20.99	19.89	40.88	51.49	-10.61	AVG	
3	0.3899	17.98	19.93	37.91	48.06	-10.15	AVG	
4	0.4180	18.35	19.94	38.29	47.49	-9.20	AVG	
5	0.4340	21.30	19.95	41.25	57.18	-15.93	QP	
6	0.4380	18.78	19.95	38.73	47.10	-8.37	AVG	
7	0.4620	22.20	19.96	42.16	46.66	-4.50	AVG	
8	0.4860	24.79	19.97	44.76	56.24	-11.48	QP	
9	0.4900	22.12	19.98	42.10	46.17	-4.07	AVG	
10	0.6820	15.64	20.03	35.67	56.00	-20.33	QP	
11	1.7780	14.70	20.14	34.84	56.00	-21.16	QP	
12	4.9220	16.22	20.20	36.42	56.00	-19.58	QP	

Conducted Emission Test Data

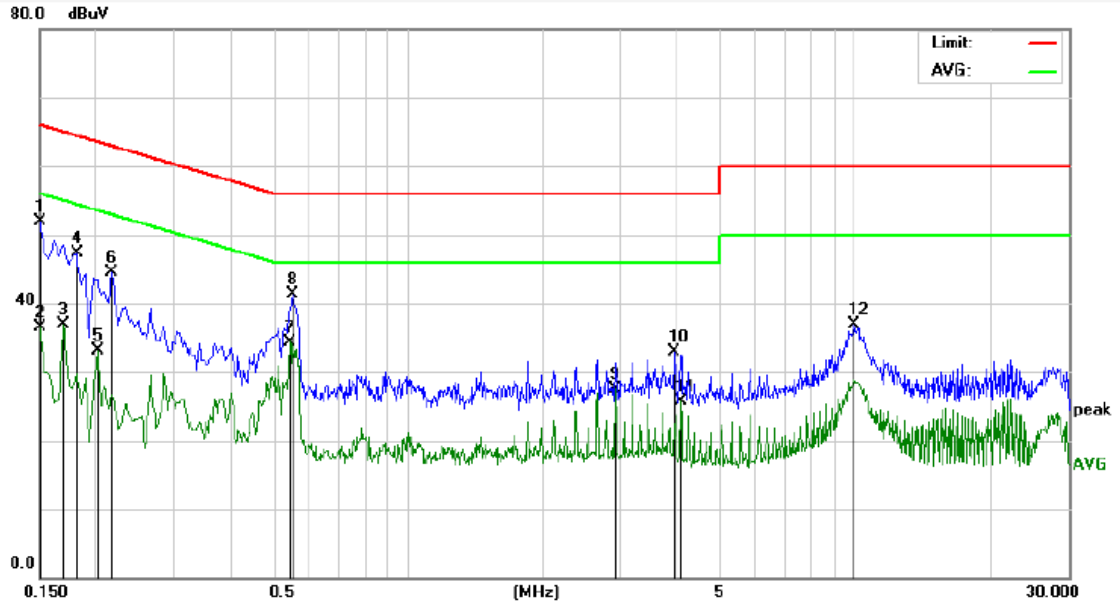
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Tem.: 22.5℃ Hum.: 52%
Note: Adapter: A653-1803500D



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	32.72	19.90	52.62	65.99	-13.37	QP	
2	0.1539	19.22	19.90	39.12	55.78	-16.66	AVG	
3	0.1660	18.30	19.90	38.20	55.15	-16.95	AVG	
4	0.1819	27.95	19.90	47.85	64.39	-16.54	QP	
5	0.3860	21.19	19.93	41.12	58.15	-17.03	QP	
6	0.3860	19.54	19.93	39.47	48.15	-8.68	AVG	
7	0.5420	19.56	19.99	39.55	56.00	-16.45	QP	
8	0.5420	14.62	19.99	34.61	46.00	-11.39	AVG	
9	3.1820	5.87	20.16	26.03	46.00	-19.97	AVG	
10	3.9460	12.65	20.18	32.83	56.00	-23.17	QP	
11	9.9379	8.59	20.34	28.93	50.00	-21.07	AVG	
12	9.9819	16.43	20.34	36.77	60.00	-23.23	QP	

Conducted Emission Test Data

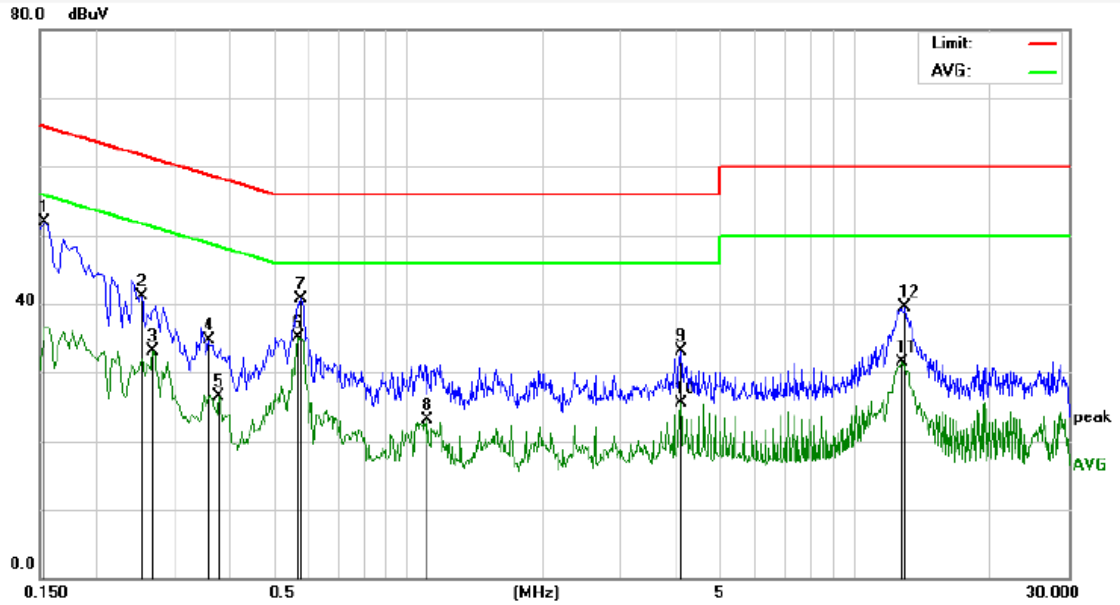
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	31.94	19.90	51.84	65.99	-14.15	QP	
2	0.1500	16.51	19.90	36.41	55.99	-19.58	AVG	
3	0.1700	16.94	19.90	36.84	54.96	-18.12	AVG	
4	0.1819	27.37	19.90	47.27	64.39	-17.12	QP	
5	0.2020	13.11	19.90	33.01	53.52	-20.51	AVG	
6	0.2180	24.65	19.90	44.55	62.89	-18.34	QP	
7	0.5460	14.41	19.99	34.40	46.00	-11.60	AVG	
8	0.5540	21.26	20.00	41.26	56.00	-14.74	QP	
9	2.9140	7.27	20.16	27.43	46.00	-18.57	AVG	
10	3.9460	12.71	20.18	32.89	56.00	-23.11	QP	
11	4.0900	5.44	20.18	25.62	46.00	-20.38	AVG	
12	9.9300	16.47	20.34	36.81	60.00	-23.19	QP	

Conducted Emission Test Data

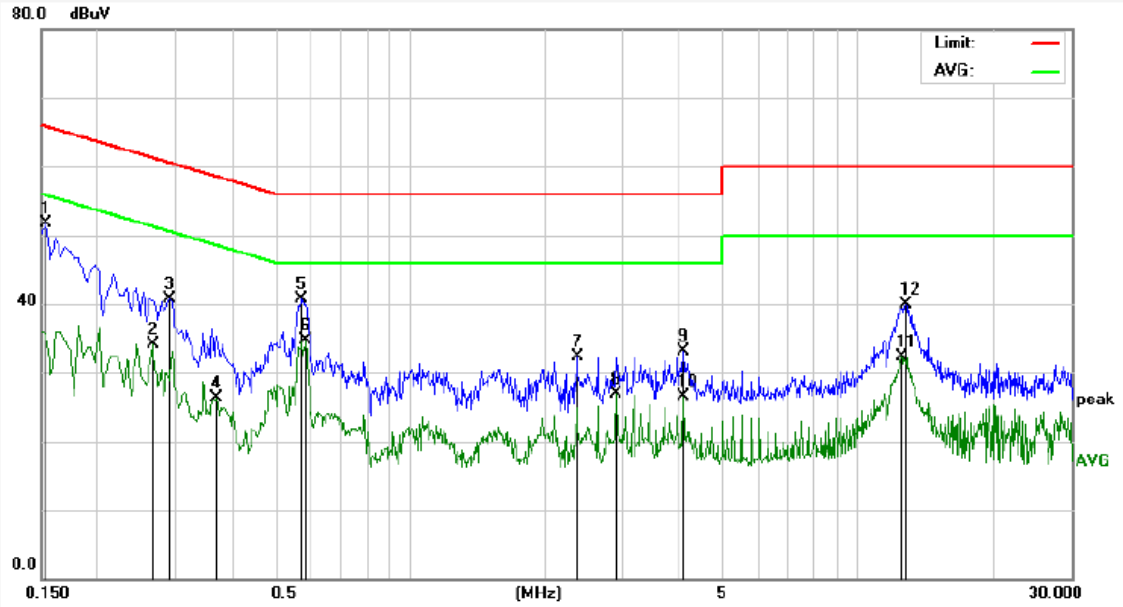
Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Live Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1539	31.97	19.90	51.87	65.78	-13.91	QP	
2	0.2540	21.27	19.89	41.16	61.62	-20.46	QP	
3	0.2700	13.24	19.89	33.13	51.12	-17.99	AVG	
4	0.3580	14.78	19.92	34.70	58.77	-24.07	QP	
5	0.3780	6.63	19.93	26.56	48.32	-21.76	AVG	
6	0.5700	15.13	20.00	35.13	46.00	-10.87	AVG	
7	0.5780	20.74	20.00	40.74	56.00	-15.26	QP	
8	1.1100	3.02	20.12	23.14	46.00	-22.86	AVG	
9	4.0900	12.91	20.18	33.09	56.00	-22.91	QP	
10	4.0900	5.36	20.18	25.54	46.00	-20.46	AVG	
11	12.7180	11.27	20.30	31.57	50.00	-18.43	AVG	
12	12.9740	19.26	20.29	39.55	60.00	-20.45	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Mode 1
Test Specification: AC 240V, 60Hz for adapter
Comment: Neutral Line
Tem.: 22.5℃ Hum.: 52%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1539	31.78	19.90	51.68	65.78	-14.10	QP	
2	0.2660	14.28	19.89	34.17	51.24	-17.07	AVG	
3	0.2900	20.84	19.89	40.73	60.52	-19.79	QP	
4	0.3700	6.37	19.92	26.29	48.50	-22.21	AVG	
5	0.5740	20.61	20.00	40.61	56.00	-15.39	QP	
6	0.5860	14.79	20.01	34.80	46.00	-11.20	AVG	
7	2.3699	12.17	20.15	32.32	56.00	-23.68	QP	
8	2.8940	6.83	20.16	26.99	46.00	-19.01	AVG	
9	4.0900	12.96	20.18	33.14	56.00	-22.86	QP	
10	4.0900	6.25	20.18	26.43	46.00	-19.57	AVG	
11	12.5180	11.91	20.30	32.21	50.00	-17.79	AVG	
12	12.8180	19.58	20.29	39.87	60.00	-20.13	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

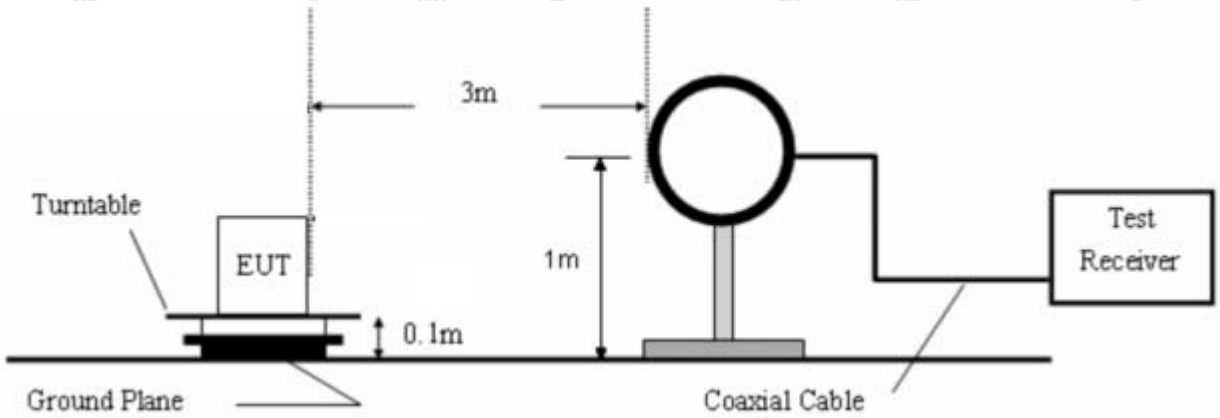


Figure 1. Below 30MHz

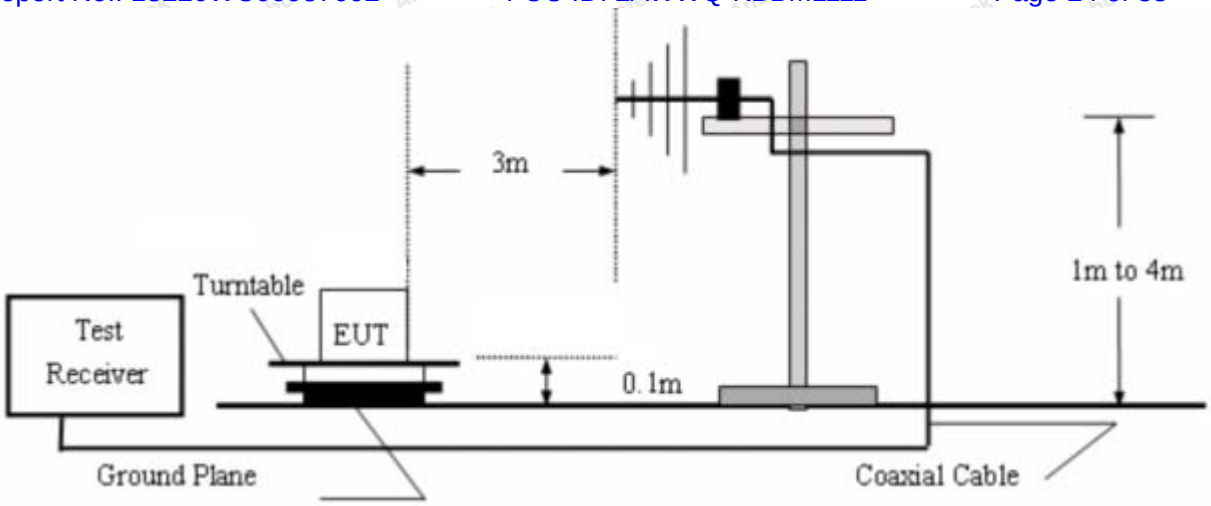


Figure 2. 30MHz to 1GHz

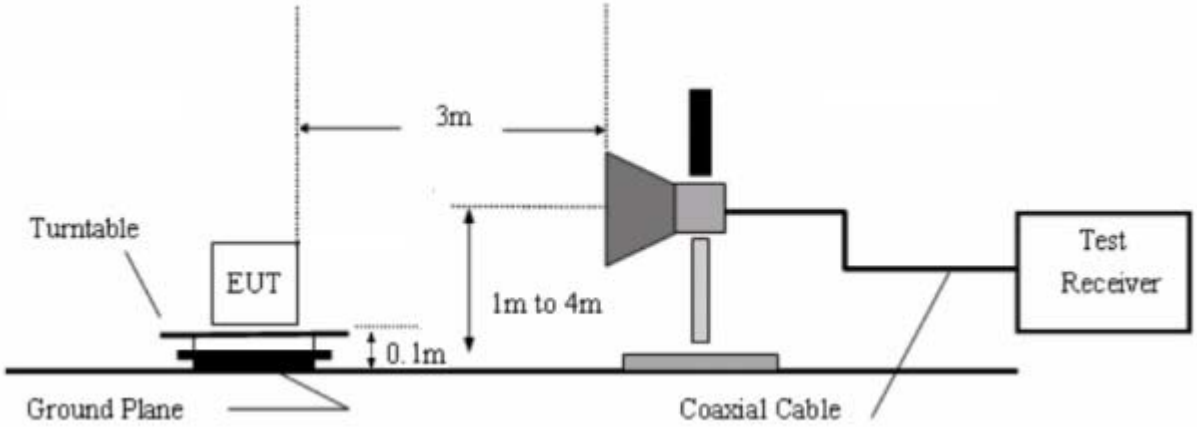


Figure 3. Above 1 GHz

4.3. Test Procedure

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

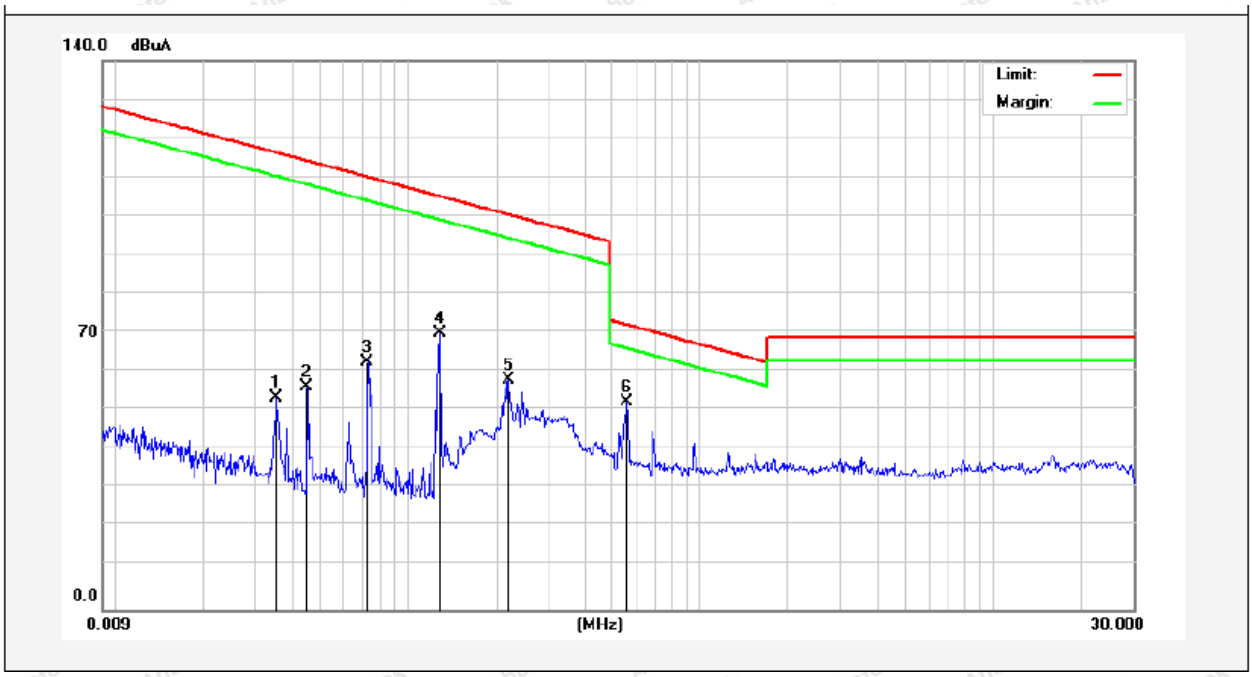
4.4. Test Data

PASS

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

Test Results (9K~30MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Distance:	3m
Note:	Adapter: FJ-SW20171803500D

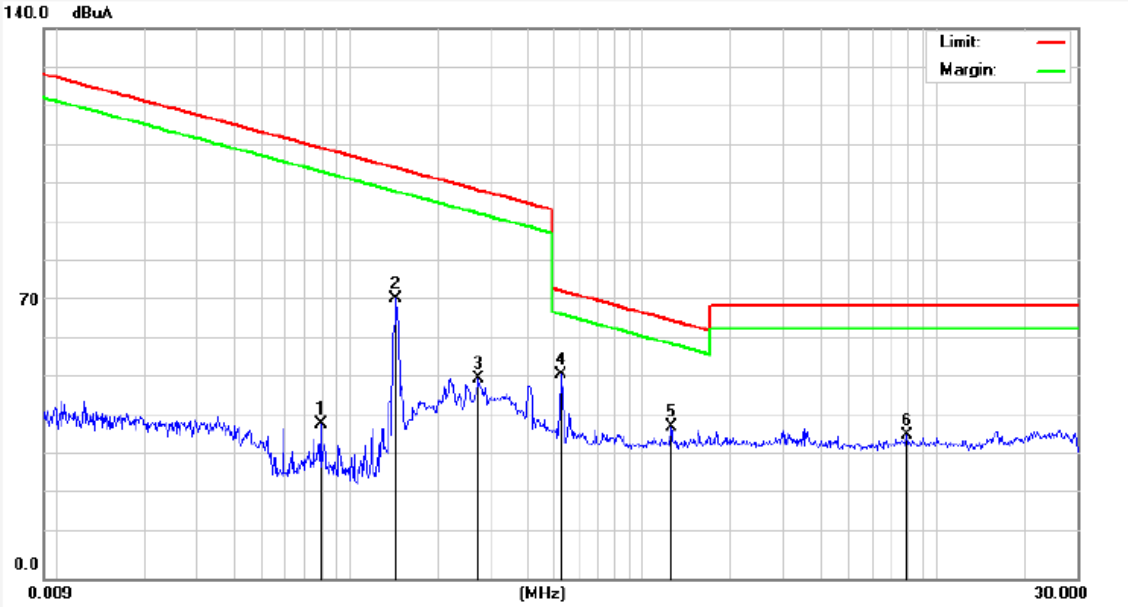


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0354	43.52	19.28	2.53	0	65.33	136.50	-71.17	Peak	129
0.0354	32.22	19.28	2.53	0	54.03	116.50	-62.47	AV	129
0.0451	45.91	19.28	2.53	0	67.72	134.40	-66.68	Peak	325
0.0451	35.18	19.28	2.53	0	56.99	114.40	-57.41	AV	325
0.0728	50.24	19.53	2.59	0	72.36	130.27	-57.91	Peak	227
0.0728	41.00	19.53	2.59	0	63.12	110.27	-47.15	AV	227
0.1282	59.17	19.53	2.59	0	81.29	125.38	-44.09	Peak	178
0.1282	48.36	19.53	2.59	0	70.48	105.38	-34.90	AV	178
0.2199	45.10	19.53	2.59	0	67.22	120.72	-53.50	Peak	267
0.2199	36.34	19.53	2.59	0	58.46	100.72	-42.26	AV	267
0.5620	29.83	20.66	2.63	0	53.12	72.61	-19.49	QP	28

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.

Test Results (9K~30MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Distance:	3m
Note:	Adapter: QX72W180350D2

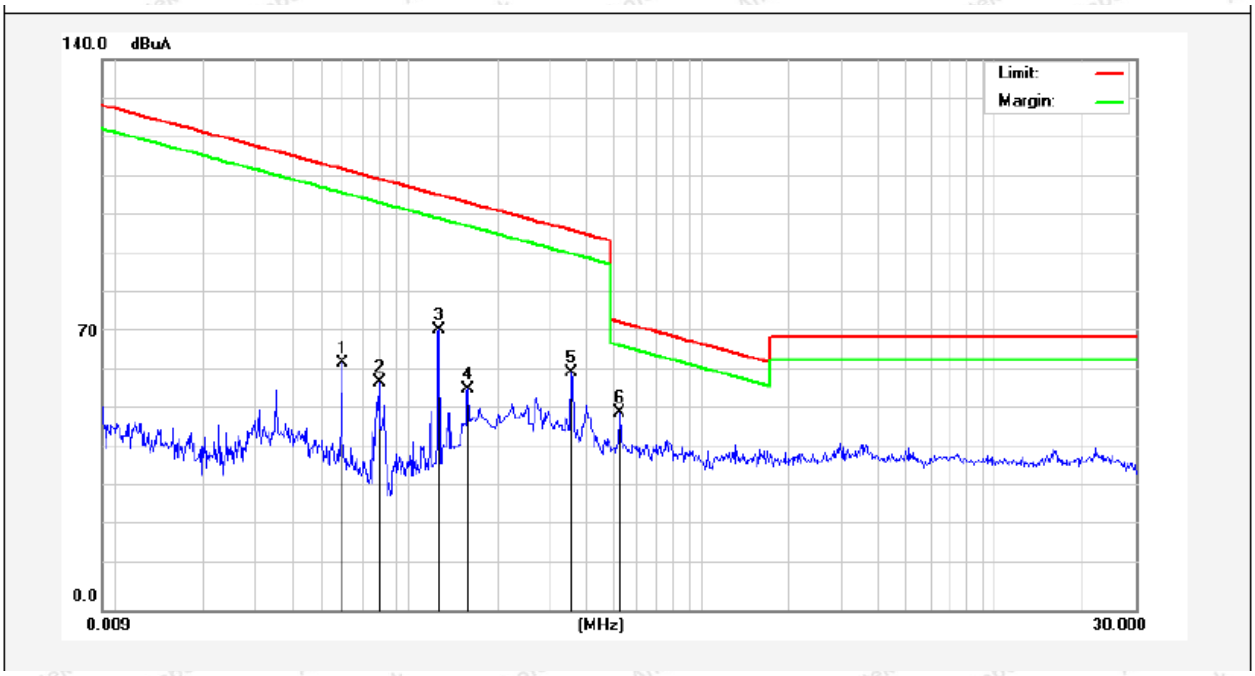


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0792	30.93	19.30	2.54	0	52.77	129.54	-76.77	Peak	217
0.0792	17.61	19.30	2.54	0	39.45	109.54	-70.09	AV	217
0.1439	58.51	19.53	2.59	0	80.63	124.38	-43.75	Peak	53
0.1439	49.05	19.53	2.59	0	71.17	104.38	-33.21	AV	53
0.2740	38.87	19.53	2.59	0	60.99	118.82	-57.83	Peak	269
0.2740	28.95	19.53	2.59	0	51.07	98.82	-47.75	AV	269
0.5260	29.15	20.34	2.59	0	52.08	73.18	-21.10	QP	328
1.2459	15.10	20.87	2.70	0	38.67	65.69	-27.02	QP	46
7.8700	12.49	21.33	2.91	0	36.73	69.54	-32.81	QP	118

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.

Test Results (9K~30MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Distance:	3m
Note:	Adapter: A653-1803500D

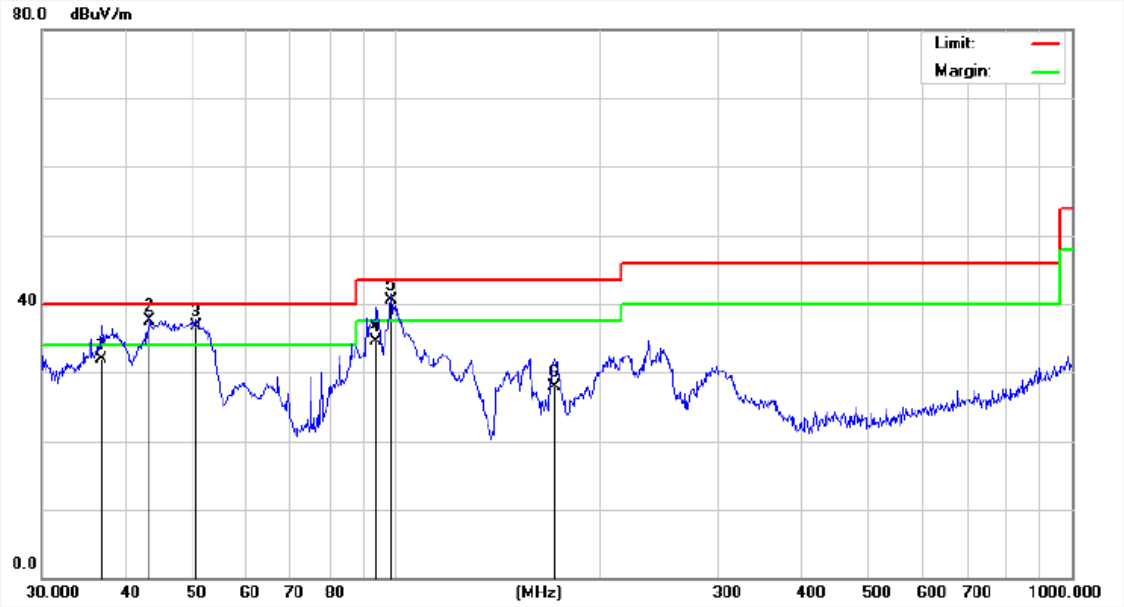


Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	degree (dge)
0.0592	48.85	19.28	2.53	0	70.66	132.05	-61.39	Peak	263
0.0592	41.00	19.28	2.53	0	62.81	112.05	-49.24	AV	263
0.0792	46.94	19.53	2.59	0	69.06	129.54	-60.48	Peak	145
0.0792	35.90	19.53	2.59	0	58.02	109.54	-51.52	AV	145
0.1272	60.21	19.53	2.59	0	82.33	125.45	-43.12	Peak	63
0.1272	49.13	19.53	2.59	0	71.25	105.45	-34.20	AV	63
0.1590	43.22	19.53	2.59	0	65.34	123.52	-58.18	Peak	228
0.1590	34.08	19.53	2.59	0	56.20	103.52	-47.32	AV	228
0.3578	47.04	19.53	2.59	0	69.16	116.51	-47.35	Peak	306
0.3578	38.32	19.53	2.59	0	60.44	96.51	-36.07	AV	306
0.5260	27.01	20.66	2.63	0	50.30	73.18	-22.88	QP	89

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.

Test Results (30~1000MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Vertical
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Note:	Adapter: FJ-SW20171803500D



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.7662	47.21	-15.32	31.89	40.00	-8.11	QP	100	0	
2	43.3534	51.50	-13.93	37.57	40.00	-2.43	QP	100	360	
3	50.7637	51.72	-15.10	36.62	40.00	-3.38	QP	100	360	
4	93.7685	49.90	-15.46	34.44	43.50	-9.06	QP	100	0	
5	98.4866	55.35	-14.88	40.47	43.50	-3.03	QP	100	0	
6	171.9946	46.62	-18.71	27.91	43.50	-15.59	QP	100	360	

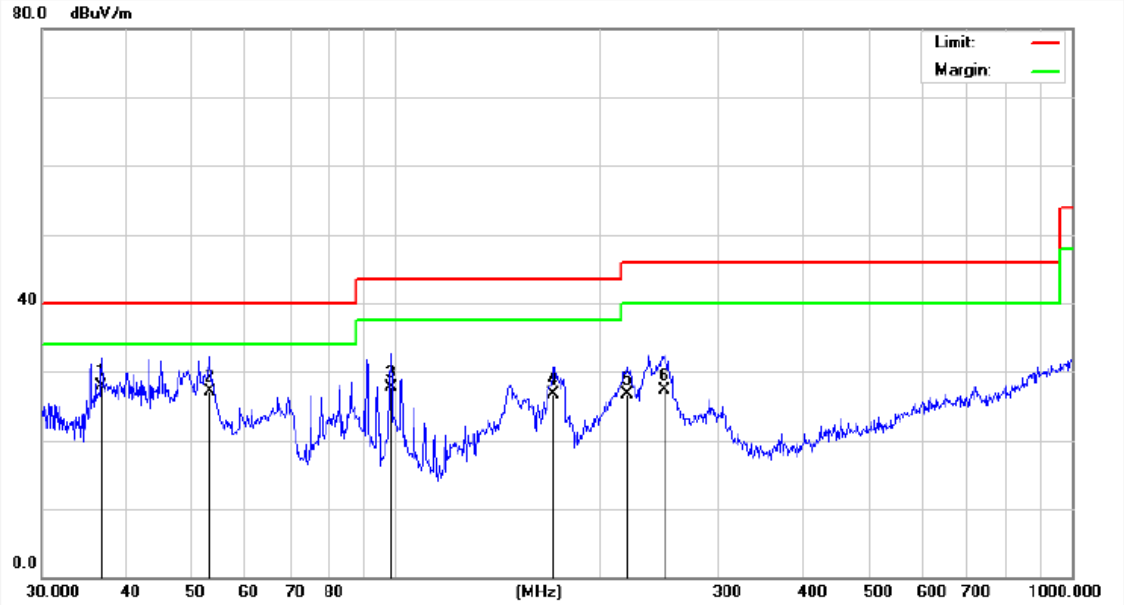
Test Results (30~1000MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Horizontal
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH

No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	55.2207	37.41	-16.51	20.90	40.00	-19.10	QP	100	0	
2	125.0066	42.30	-21.18	21.12	43.50	-22.38	QP	100	360	
3	249.4250	46.37	-18.85	27.52	46.00	-18.48	QP	100	0	
4	290.0172	42.77	-15.20	27.57	46.00	-18.43	QP	100	360	
5	460.7271	32.43	-11.63	20.80	46.00	-25.20	QP	100	0	
6	580.7026	28.41	-7.24	21.17	46.00	-24.83	QP	100	360	

Test Results (30~1000MHz)

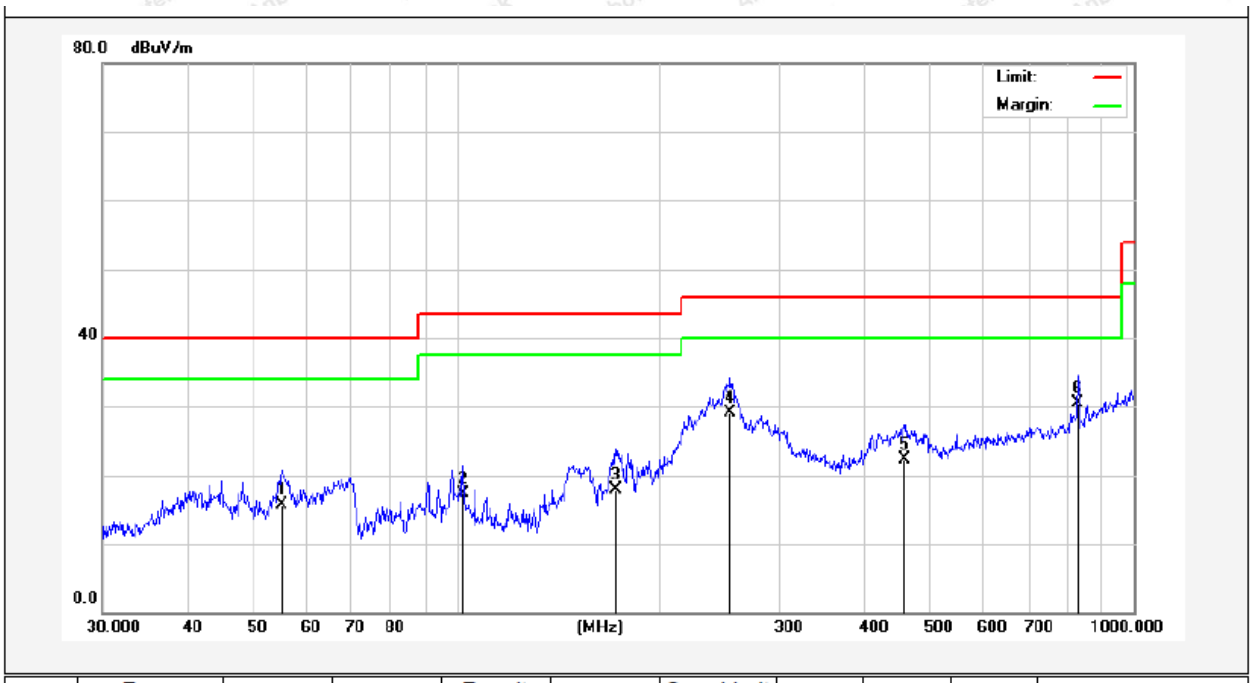
Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Vertical
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Note:	Adapter: QX72W180350D2



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.7662	43.16	-15.32	27.84	40.00	-12.16	QP	100	0	
2	53.1313	43.01	-15.90	27.11	40.00	-12.89	QP	100	360	
3	98.4866	42.58	-14.88	27.70	43.50	-15.80	QP	100	0	
4	171.3926	45.45	-18.75	26.70	43.50	-16.80	QP	100	360	
5	219.8449	43.20	-16.44	26.76	46.00	-19.24	QP	100	0	
6	249.4250	42.62	-15.30	27.32	46.00	-18.68	QP	100	360	

Test Results (30~1000MHz)

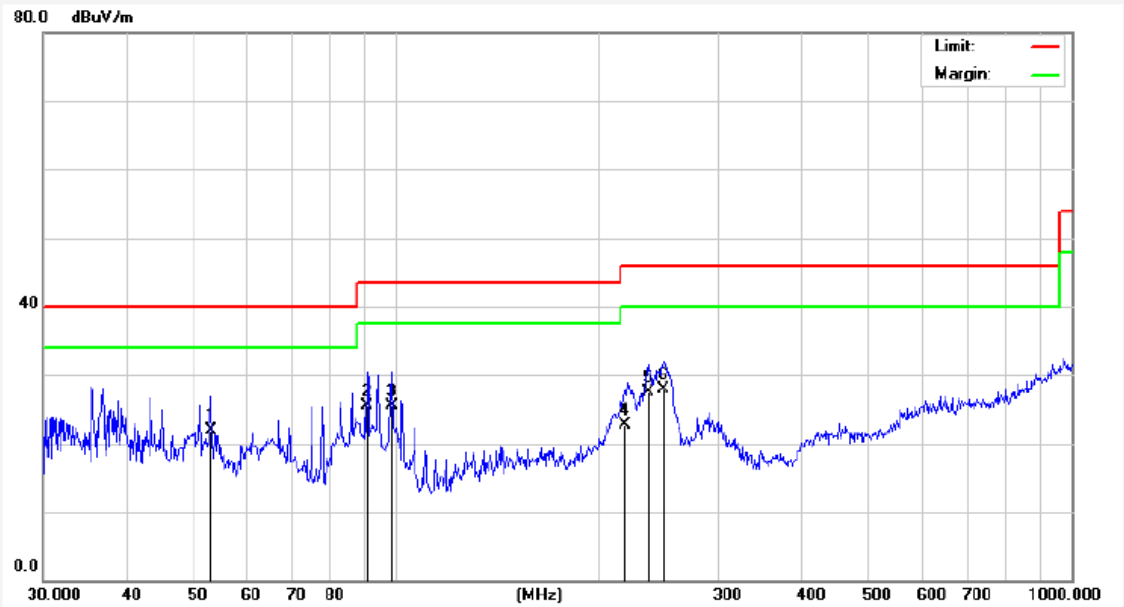
Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Horizontal
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	55.2207	32.16	-16.51	15.65	40.00	-24.35	QP	100	0	
2	102.3597	37.15	-19.81	17.34	43.50	-26.16	QP	100	360	
3	171.9946	39.06	-21.21	17.85	43.50	-25.65	QP	100	0	
4	253.8367	47.66	-18.49	29.17	46.00	-16.83	QP	100	360	
5	459.1144	34.01	-11.70	22.31	46.00	-23.69	QP	100	0	
6	827.4934	34.12	-3.62	30.50	46.00	-15.50	QP	100	360	

Test Results (30~1000MHz)

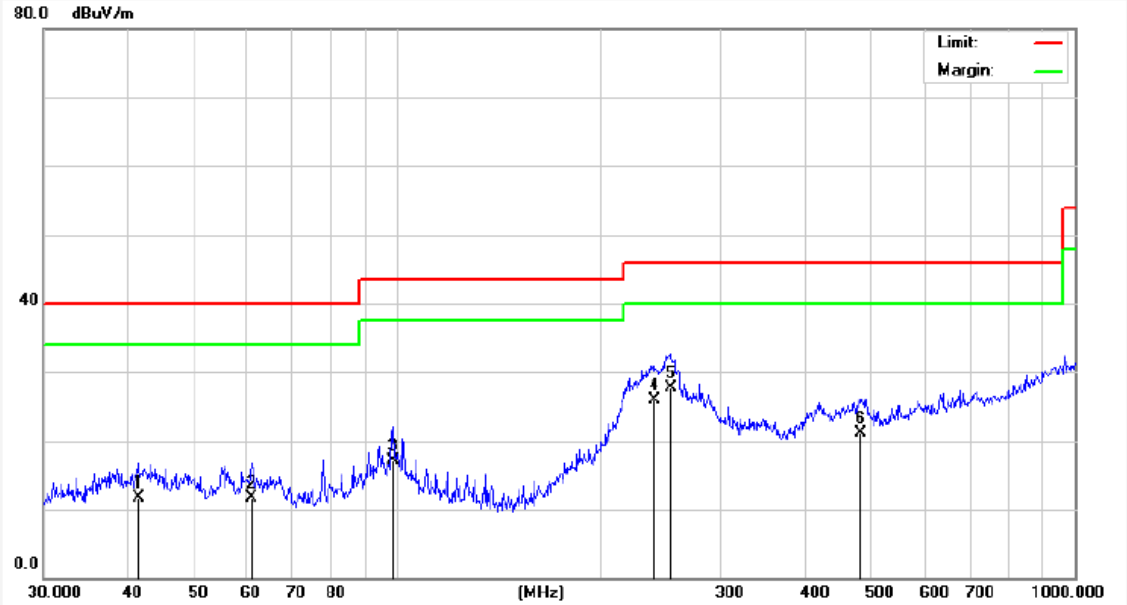
Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Vertical
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH
Note:	Adapter: A653-1803500D



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	53.1313	37.79	-15.90	21.89	40.00	-18.11	QP	100	360	
2	90.5374	41.13	-15.72	25.41	43.50	-18.09	QP	100	0	
3	98.4866	40.42	-14.88	25.54	43.50	-17.96	QP	100	360	
4	218.3085	39.19	-16.49	22.70	46.00	-23.30	QP	100	0	
5	235.8164	43.42	-15.82	27.60	46.00	-18.40	QP	100	360	
6	248.5519	43.22	-15.33	27.89	46.00	-18.11	QP	100	0	

Test Results (30~1000MHz)

Test Mode:	Mode 1
Power Source:	AC 120V, 60Hz for adapter
Polarization:	Horizontal
Temp.(℃)/Hum.(%RH):	22.9℃/49%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	41.4215	26.51	-14.82	11.69	40.00	-28.31	QP	100	360	
2	60.9176	28.29	-16.52	11.77	40.00	-28.23	QP	100	0	
3	98.4866	36.57	-19.52	17.05	43.50	-26.45	QP	100	360	
4	239.1473	45.02	-19.06	25.96	46.00	-20.04	QP	100	0	
5	252.9482	46.19	-18.57	27.62	46.00	-18.38	QP	100	360	
6	482.2156	31.90	-10.77	21.13	46.00	-24.87	QP	100	0	

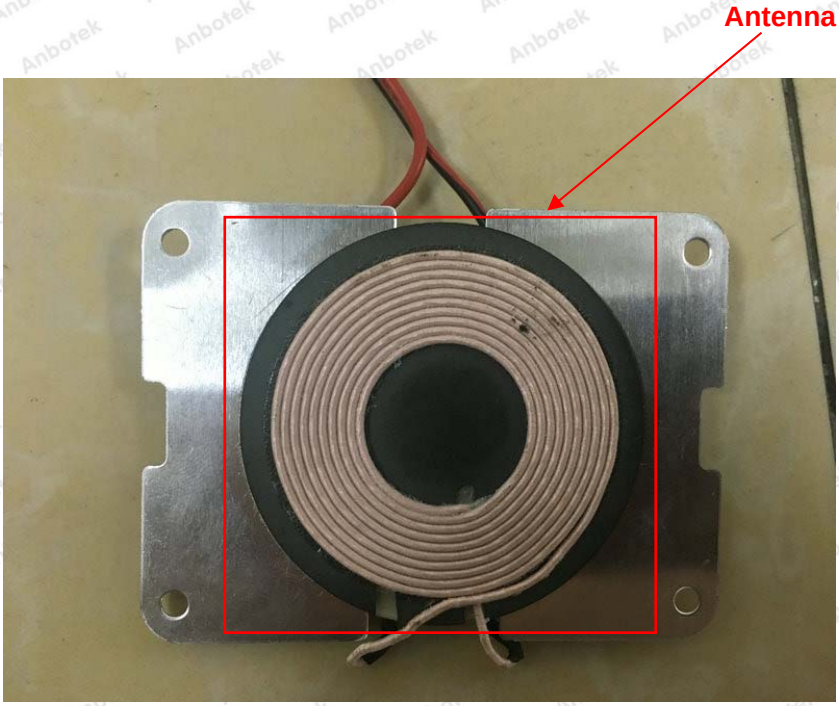
5. Antenna Requirement

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

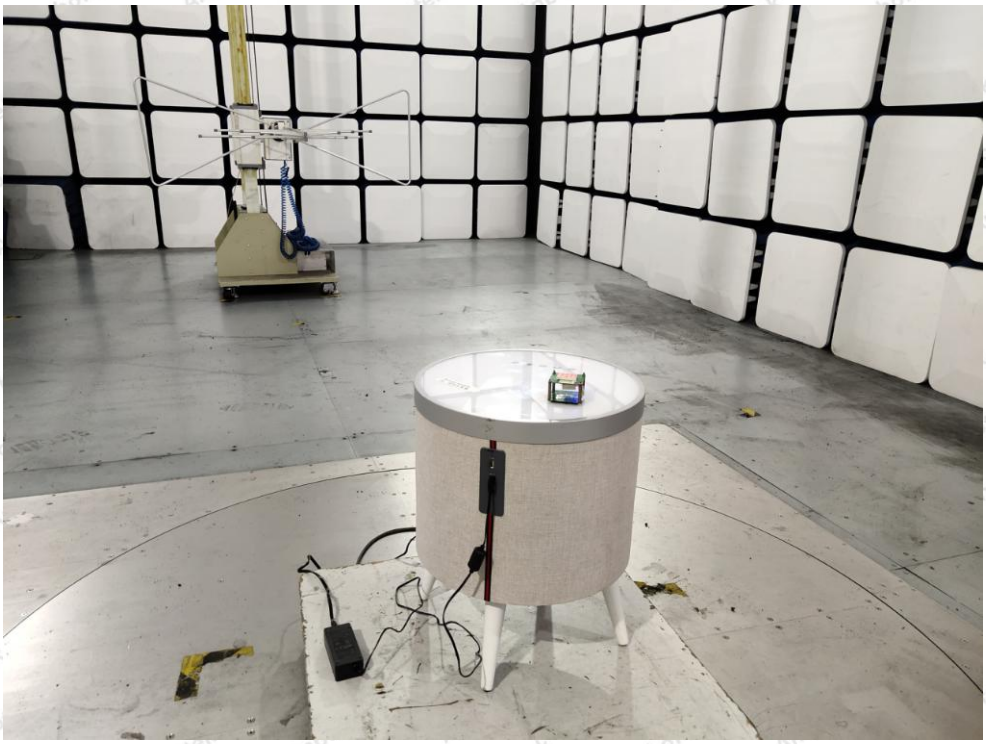
The antenna is a Inductive loop coil Antenna which permanently attached, and the best case gain of the antenna is 0 dBi. It complies with the standard requirement.

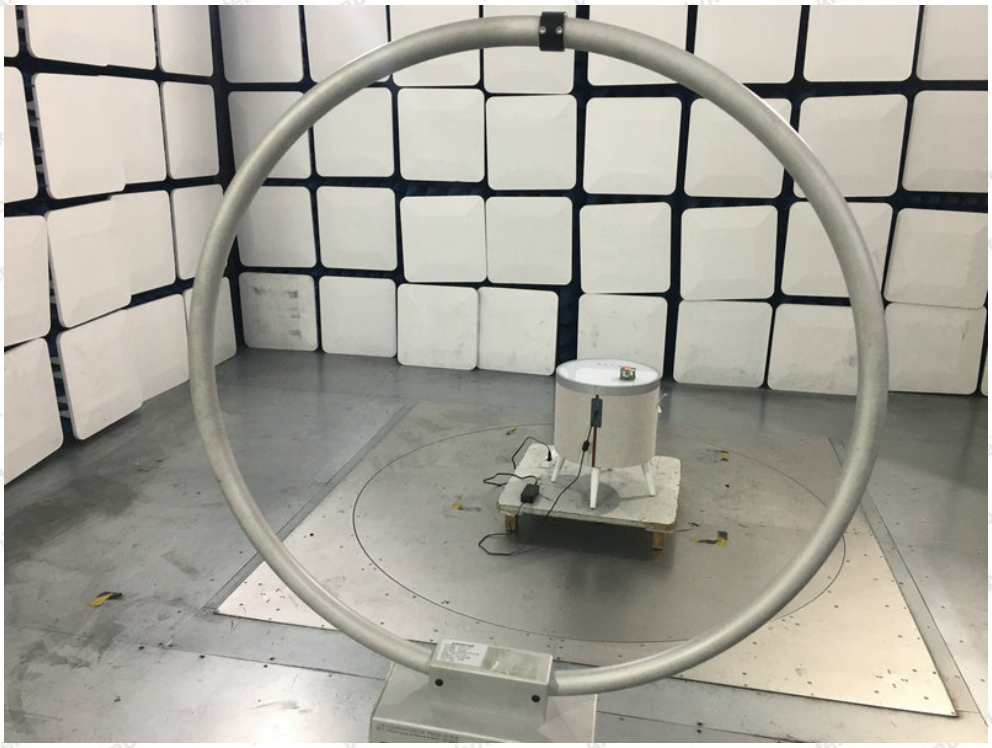


APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

Photo of Radiation Emission Test





APPENDIX II -- PHOTOGRAPH

Reference to the test report 18220WC00087601.

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

Address: 1/F., Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.
Tel:(86) 755-26066440 Fax: (86) 755-26014772 Email: service@anbotek.com
Hotline 400-003-0500
www.anbotek.com