FCC RADIO TEST REPORT

FCC ID: 2BBAWPFD-002

Sample : Automatic Pet Feeder

Trade Mark : N/A

Main Model : PFD-002 PRO

Additional Model : PTM-701

Report No. : UNIA24030717ER-63

Prepared for

Shenzhenbenfendianzishangwuyouxiangongsi

MinZhi JieDao ZhangKengSheQu XiangNanSiQu 25 Dong 703 Shenzhen Shi LongHua Qu, Shenzhen, China

Prepared by

Shenzhen United Testing Technology Co., Ltd.

D101&D401, No. 107, Kaicheng High-Tech Park, Taoyuan Community, Dalang Sub-District, Longhua District, Shenzhen, Guangdong, China

TEST RESULT CERTIFICATION

Applicant	:	Shenzhenbenfendianzishangwuyouxiangongsi
Address	:	MinZhi JieDao ZhangKengSheQu XiangNanSiQu 25 Dong 703 Shenzhen Shi LongHua Qu, Shenzhen, China
Manufacturer	:	Shenzhen Ipetmon Creative Technology Co., Ltd.
Address	:	5th Floor, Building B, Honghengtai High-tech Park, Shangcun, Gongming Street, Guangming District, Shenzhen

Product description

Product	:	Automatic Pet Feeder
Trade Mark	:	N/A
Model Name	:	PFD-002 PRO, PTM-701
Test Methods	:	FCC Rules and Regulations Part 15 Subpart C Section 15.407 ANSI C63.10: 2013

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval, this document may be altered or revised by Shenzhen United Testing Technology Co., Ltd., personnel only, and shall be noted in the revision of the document.

Date of Test

Date (s) of performance of tests	:	Mar. 08, 2024 ~ Mar. 15, 2024
Date of Issue	:	Mar. 16, 2024
Test Result	:	Pass

Prepared by: Jason Ye

Jason Ye/Editor

Reviewer: Kelly Cheng

Kelly Cheng/Supervisor

Approved & Authorized Signer: Liuze

Liuze/Manager

Table of Contents Page

1 TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

Item	FCC Rules	Description Of Test	Result
1	FCC Part 15.209	Radiated Emission	Pass
2	FCC Part 15.207	Line Conduction Emission	Pass

Note:

“N/A” denotes test is not applicable in this Test Report.

1.2 TEST FACILITY

Test Firm : Shenzhen United Testing Technology Co., Ltd.

Address : D101&D401, No. 107, Kaicheng High-Tech Park, Taoyuan Community, Dalang Sub-District, Longhua District, Shenzhen, Guangdong, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

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

A2LA Certificate Number: 4747.01
The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 674885
The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 31584

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

1.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
UNI	ANSI	9kHz ~ 150kHz	2.96
		150kHz ~ 30MHz	2.44

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
UNI	ANSI	9kHz ~ 30MHz	2.50
		30MHz ~ 1000MHz	4.80
		1000MHz ~ 18000MHz	4.13

C. RF Conducted Method:

Item	Measurement Uncertainty
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

1.4 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 °C
Relative Humidity:	30~60 %
Air Pressure:	950~1050 hPa

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product:	Automatic Pet Feeder
Trade Name:	N/A
Main Model:	PFD-002 PRO
Additional Model:	PTM-701
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: PFD-002 PRO.
Operation Frequency:	Band 1: 5150 MHz～5250MHz; Band 4: 5725 MHz～5850MHz
Modulation Type:	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM, OFDM
Maximum Peak Conducted Output Power:	Band 1: 14.57dBm; Band 4: 14.63dBm
Antenna Type:	PCB Antenna
Antenna Gain:	Band 1: 1.97dBi; Band 4: -0.76dBi
Adapter:	Model: AS0601A-0501000USU Input: AC 100-240, 50/60Hz, 0.2A MAX Output: DC 5.0V, 1000mA
Battery:	N/A
Power Source:	DC 5V from adapter or DC 6.0V from battery

2.2 CARRIER FREQUENCY OF CHANNELS

Frequency Band	Channel Number	Frequency	Frequency Band	Channel Number	Frequency
5150 MHz ~ 5250MHz	36	5180 MHz	5725 MHz ~ 5850MHz	149	5745 MHz
	38	5190 MHz		151	5755 MHz
	40	5200 MHz		153	5765 MHz
	42	5210 MHz		155	5775 MHz
	44	5220 MHz		157	5785 MHz
	46	5230 MHz		159	5795 MHz
	48	5240 MHz		165	5825MHz

Note: For 20MHz bandwidth system use Channel 36, 40, 48, 149, 157, 165; For 40MHz bandwidth system use Channel 38, 46, 151, 159.

2.3 TEST MODE

Mode	Tested channel	Modulation	Date rate(Mbps)
802.11a/n20	36, 40, 48, 149, 157, 165	OFDM	6Mbps/MCS0
802.11n40	38, 46, 151, 159	OFDM	MCS0

Note:

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%.
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.

2.4 DESCRIPTION OF THE TEST MODES

During the measurement the environmental conditions were within the listed ranges:

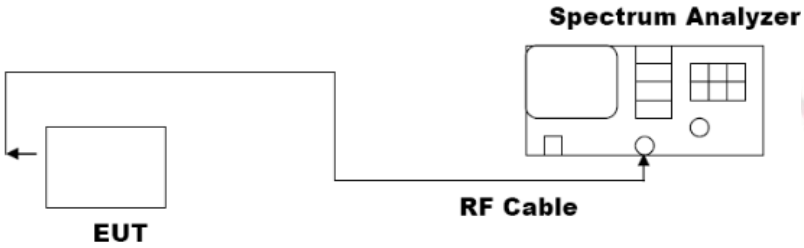
Voltage	Normal Voltage	DC 6V
	High Voltage	DC 6.6V
	Low Voltage	DC 5.4V
Other	Normal Temperature	24°C
	Relative Humidity	55 %
	Air Pressure	989 hPa

Note: All modes were test at Normal Voltage, High Voltage, and Low Voltage, only the worst results of Normal Voltage was reported in the test report.

2.5 TEST SETUP

Operation of EUT during Radiation testing:

Operation of EUT during RF Conducted testing:



2.6 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model No.	Cable Length(cm)	Remark
1	Automatic Pet Feeder	PFD-002 PRO	1.5m	EUT

Note:

1. The support equipment was authorized by Declaration of Confirmation.
2. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

2.7 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
Conduction Emissions Measurement					
1	Conducted Emission Test Software	EZ-EMC	Ver.CCS-3A1-CE	N/A	N/A
2	AMN	Schwarzbeck	NNLK8121	8121370	2024.06.11
3	AAN	TESEQ	T8-Cat6	38888	2024.06.11
4	Pulse Limiter	CYBRTEK	EM5010	E115010056	2024.06.11
5	EMI Test Receiver	Rohde&Schwarz	ESCI	101210	2024.06.11
Radiated Emissions Measurement					
1	Radiated Emission Test Software	EZ-EMC	Ver.CCS-03A1	N/A	N/A
2	Horn Antenna	Sunol	DRH-118	A101415	2025.07.14
3	Broadband Hybrid Antenna	Sunol	JB1	A090215	2025.07.28
4	PREAMP	HP	8449B	3008A00160	2024.06.11
5	PREAMP	HP	8447D	2944A07999	2024.06.11
6	EMI TEST RECEIVER	Rohde&Schwarz	ESR3	101891	2024.06.11
7	VECTOR Signal Generator	Rohde&Schwarz	SMU200A	101521	2024.06.11
8	Signal Generator	Agilent	E4421B	MY4335105	2024.06.11
9	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2024.06.11
10	MXA Signal Analyzer	Keysight	N9020A	MY51110104	2024.06.11
11	RF Power sensor	DARE	RPR3006W	15I00041SNO88	2024.06.11
12	RF Power sensor	DARE	RPR3006W	15I00041SNO89	2024.06.11
13	RF power divider	Anritsu	K241B	992289	2024.06.11
14	Wideband radio communication tester	Rohde&Schwarz	CMW500	154987	2024.06.11
15	Active Loop Antenna	Com-Power	AL-130R	10160009	2024.06.11
16	Broadband Hybrid Antennas	Schwarzbeck	VULB9163	VULB9163#958	2024.09.22
17	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2025.07.14
18	Horn Antenna	A-INFOMW	LB-180400-KF	J211060660	2024.07.14
19	Microwave Broadband Preamplifier	Schwarzbeck	BBV 9721	100472	2024.09.22
20	Signal Generator	Agilent	N5183A	MY47420153	2024.09.22
21	Spctrum Analyzer	Rohde&Schwarz	FSP 40	100501	2024.09.22
22	Power Meter	KEYSIGHT	N1911A	MY50520168	2024.09.22
23	Frequency Meter	VICTOR	VC2000	997406086	2024.09.22
24	DC Power Source	HYELEC	HY5020E	055161818	2024.09.22

3 CONDUCTED EMISSION

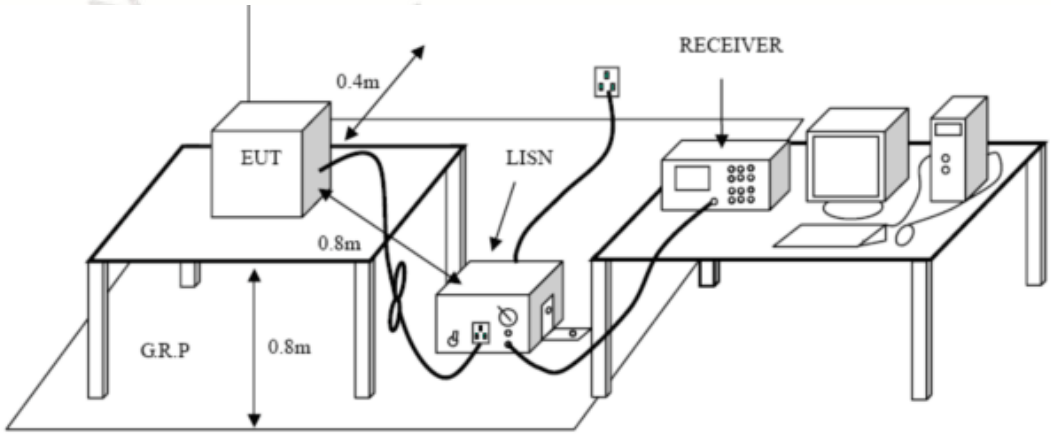
3.1 TEST LIMIT

For unintentional device, according to § 15.207(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15~0.50	79	66	66~56*	56~46*
0.50~5.00	73	60	56	46
5.00~30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency.
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 TEST SETUP



3.3 TEST PROCEDURE

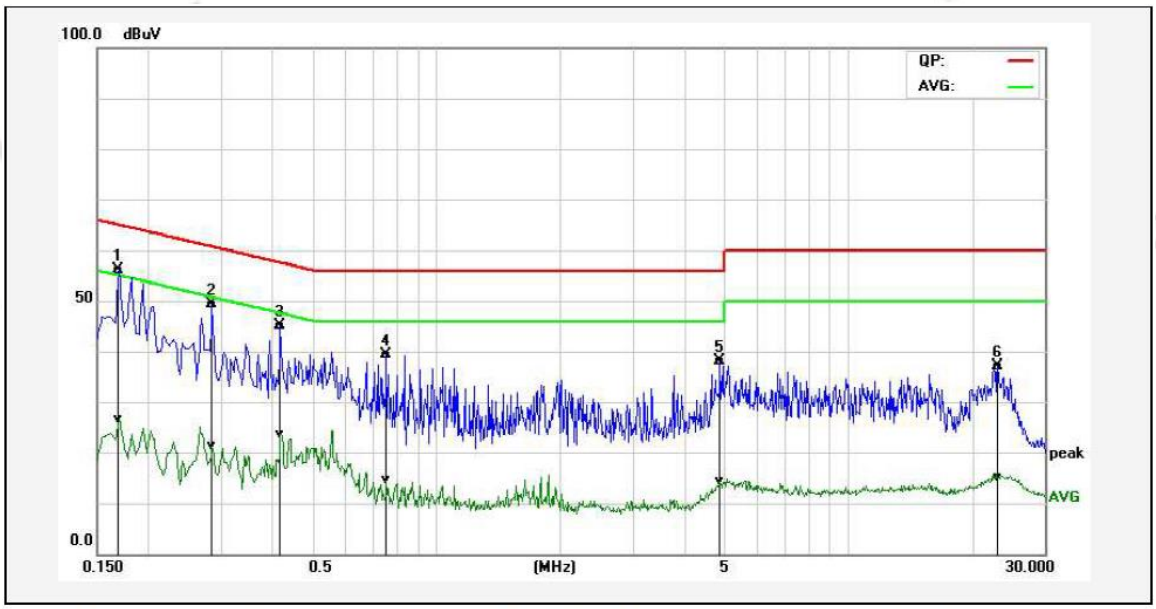
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is placed on a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

3.4 TEST RESULT

PASS

Remark:
1. All modes were test at Low, Middle, and High channel, only the worst result of Band 1 802.11a Low Channel was reported for below 1GHz test.
2. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, and test data recorded in this report.

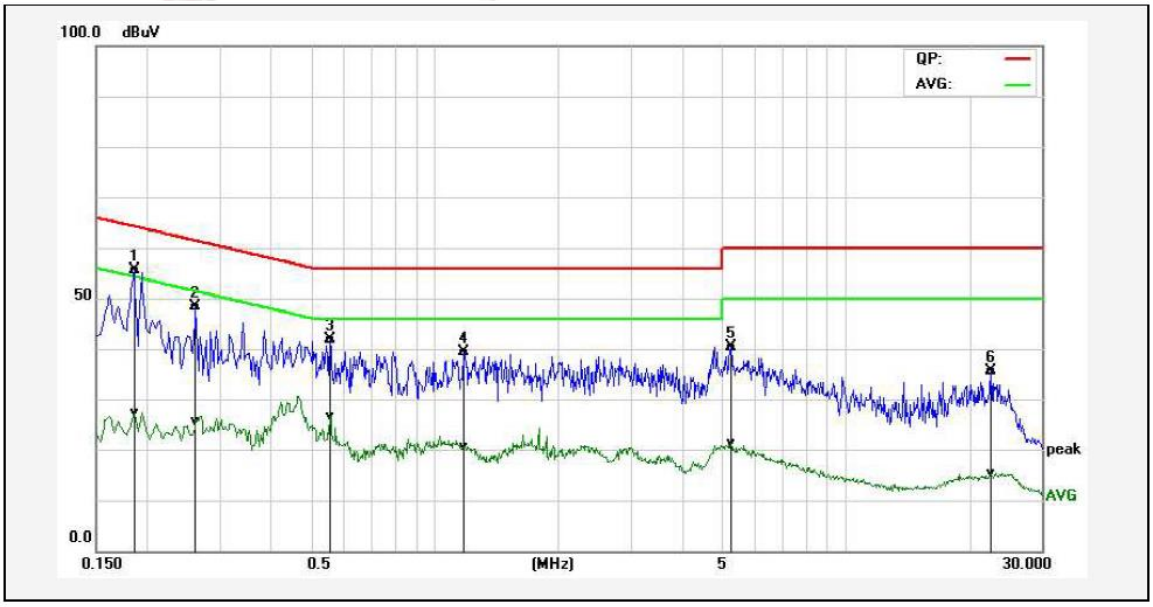
Temperature:	24℃	Relative Humidity:	48%
Test Date:	Mar. 09, 2024	Pressure:	1010hPa
Test Voltage:	AC 120V, 60Hz	Phase:	Line
Test Mode:	Transmitting mode of Band 1 802.11a 5180MHz		



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1700	45.21	15.74	10.84	56.05	26.58	64.96	54.96	-8.91	-28.38	Pass
2P	0.2860	38.78	10.75	10.62	49.40	21.37	60.64	50.64	-11.24	-29.27	Pass
3P	0.4180	34.46	12.97	10.67	45.13	23.64	57.49	47.49	-12.36	-23.85	Pass
4P	0.7580	28.66	3.91	10.73	39.39	14.64	56.00	46.00	-16.61	-31.36	Pass
5P	4.8740	26.59	2.87	11.62	38.21	14.49	56.00	46.00	-17.79	-31.51	Pass
6P	23.1020	20.98	-1.09	16.20	37.18	15.11	60.00	50.00	-22.82	-34.89	Pass

Remark: Factor = Insertion Loss + Cable Loss, Result = Reading + Factor, Margin = Result – Limit.

Temperature:	24℃	Relative Humidity:	48%
Test Date:	Mar. 09, 2024	Pressure:	1010hPa
Test Voltage:	AC 120V, 60Hz	Phase:	Neutral
Test Mode:	Transmitting mode of Band 1 802.11a 5180MHz		



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1860	44.82	16.71	10.72	55.54	27.43	64.21	54.21	-8.67	-26.78	Pass
2P	0.2620	37.86	15.13	10.62	48.48	25.75	61.37	51.37	-12.89	-25.62	Pass
3P	0.5580	31.29	16.03	10.70	41.99	26.73	56.00	46.00	-14.01	-19.27	Pass
4P	1.1780	28.53	9.84	10.78	39.31	20.62	56.00	46.00	-16.69	-25.38	Pass
5P	5.2620	28.64	9.54	11.74	40.38	21.28	60.00	50.00	-19.62	-28.72	Pass
6P	22.5540	19.46	-0.77	16.07	35.53	15.30	60.00	50.00	-24.47	-34.70	Pass

Remark: Factor = Insertion Loss + Cable Loss, Result = Reading + Factor, Margin = Result – Limit.

4 RADIATED EMISSION

4.1 TEST LIMIT

For unintentional device, according to §15.209(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F (kHz)	-	Quasi-peak	300
0.490MHz-1.705MHz	24000/F (kHz)	-	Quasi-peak	30
1.705MHz-30MHz	30	-	Quasi-peak	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-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3
		74.0	Peak	3

Limit calculation and transfer to 3m distance as showed in the following table:

Frequency (MHz)	**Limit (dBuV/m)**	**Distance (m)**
0.009-0.490	20log(2400/F(KHz))+40log(300/3)	3
0.490-1.705	20log(24000/F(KHz))+40log(30/3)	3
1.705-30.0	69.5	3
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

Limits of unwanted emission out of the restricted bands

Frequency (MHz)	EIRP Limits (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5150~5250	-27	68.2
5250~5350	-27	68.2
5470~5725	-27	68.2
5725~5850	-27(Note 2)	68.2
	10(Note 2)	105.2
	15.6(Note 2)	110.8
	27(Note 2)	122.2

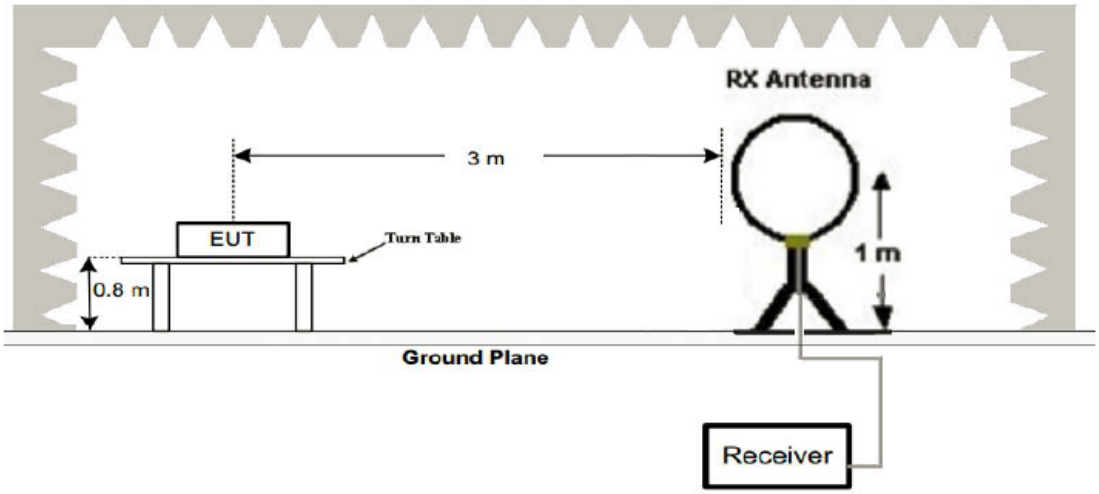
NOTE:
1, The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E=\frac{1000000\sqrt{30P}}{3}$$ uV/m, where P is the eirp (Watts)

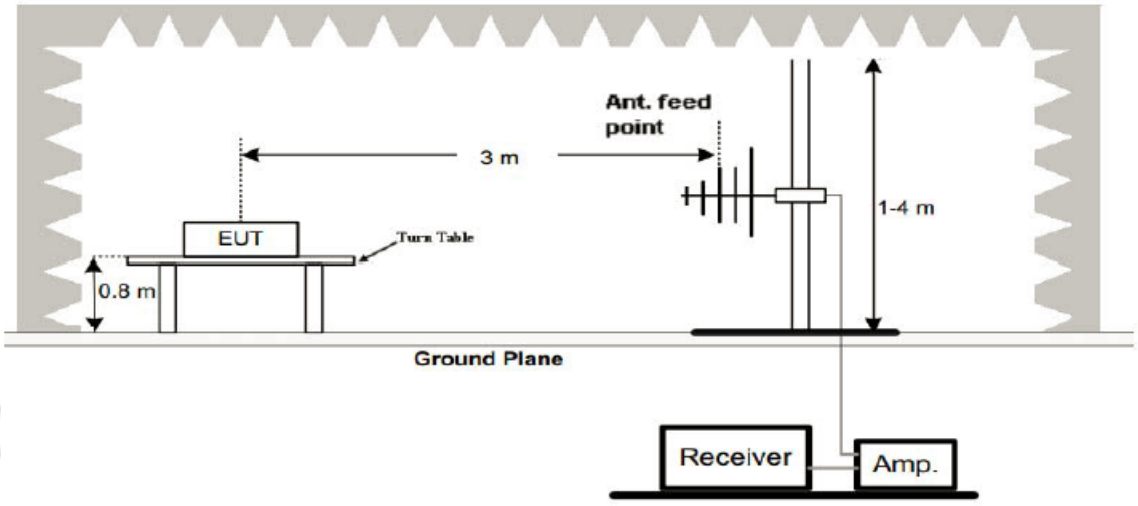
2, According to FCC 16-24,All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27dBm/MHz at the band edge.

4.2 TEST SETUP

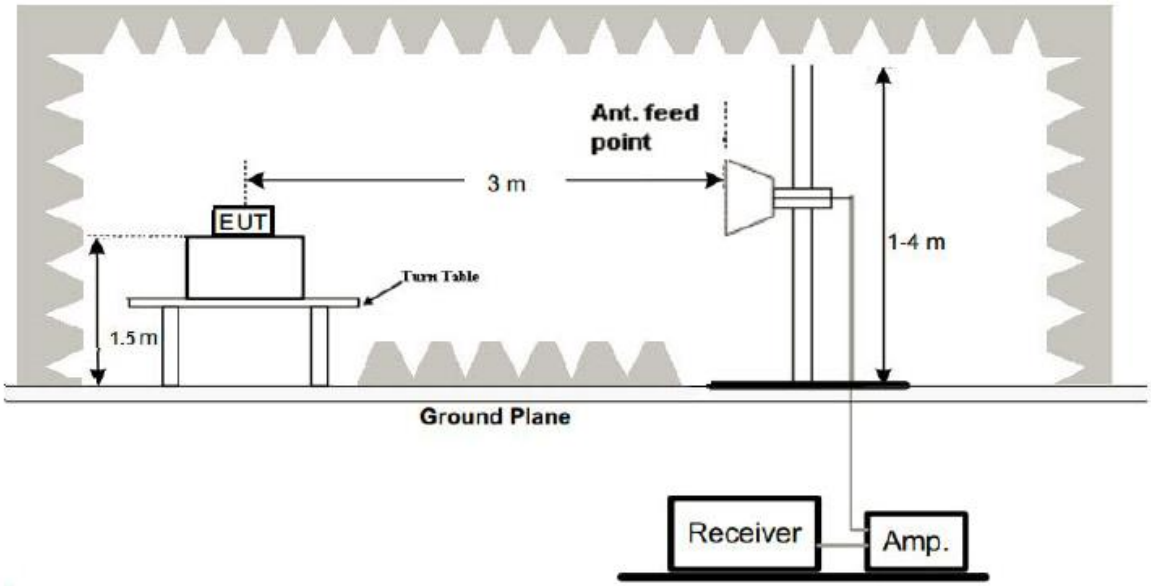
1. Radiated Emission Test-Up Frequency Below 30MHz



2. Radiated Emission Test-Up Frequency 30MHz~1GHz



3. Radiated Emission Test-Up Frequency Above 1GHz



4.3 TEST PROCEDURE

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9kHz to 25GHz per FCC PART 15.33(a).

Note: For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 TEST RESULT

PASS

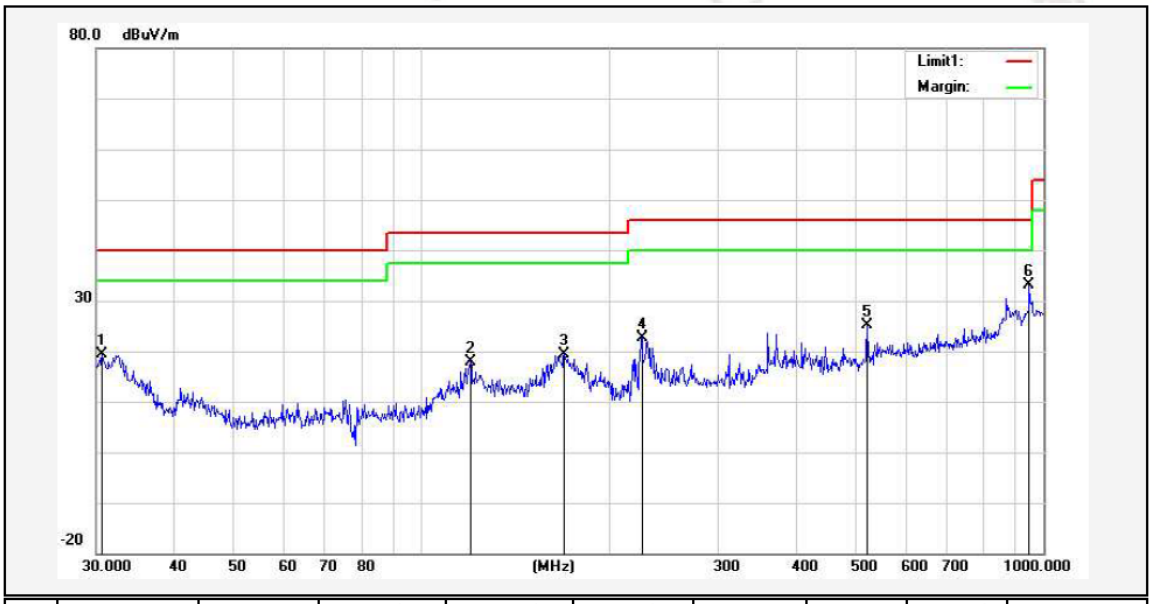
Remark:
1. All modes were test at Low, Middle, and High channel, only the worst result of band 1 802.11a Low Channel was reported for below 1GHz test.
2. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, and test data recorded in this report.

Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

Below 1GHz Test Results:

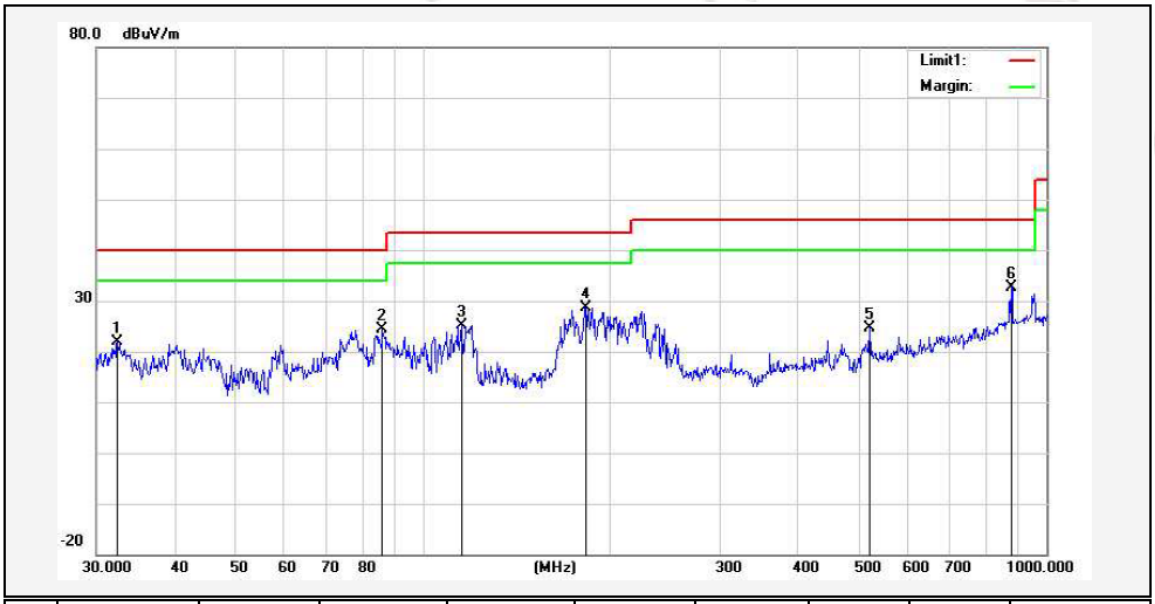
Temperature:	24℃	Relative Humidity:	48%
Test Date:	Mar. 09, 2024	Pressure:	1010hPa
Test Voltage:	AC 120V, 60Hz	Phase:	Horizontal
Test Mode:	Transmitting mode of band 1 802.11a 5180MHz		



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	30.6378	32.56	-13.24	19.32	40.00	-20.68	78	100	peak
2	119.8555	32.99	-15.12	17.87	43.50	-25.63	165	100	peak
3	169.5990	35.32	-16.03	19.29	43.50	-24.21	37	100	peak
4	226.0994	38.46	-15.76	22.70	46.00	-23.30	26	100	peak
5	520.8881	36.04	-10.85	25.19	46.00	-20.81	59	100	peak
6*	948.7610	37.42	-4.30	33.12	46.00	-12.88	141	100	peak

Remark: Result = Reading Level + Factor, Margin = Result – Limit
Factor = Ant. Factor + Cable Loss – Pre-amplifier

Temperature:	24℃	Relative Humidity:	48%
Test Date:	Mar. 09, 2024	Pressure:	1010hPa
Test Voltage:	AC 120V, 60Hz	Phase:	Vertical
Test Mode:	Transmitting mode of band 1 802.11a 5180MHz		



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	32.4060	36.40	-14.61	21.79	40.00	-18.21	134	100	peak
2	86.2001	44.72	-20.37	24.35	40.00	-15.65	61	100	peak
3	115.3204	41.38	-16.13	25.25	43.50	-18.25	58	100	peak
4	182.5592	45.62	-16.89	28.73	43.50	-14.77	77	100	peak
5	520.8881	35.46	-10.85	24.61	46.00	-21.39	122	100	peak
6*	878.3214	38.05	-5.49	32.56	46.00	-13.44	153	100	peak

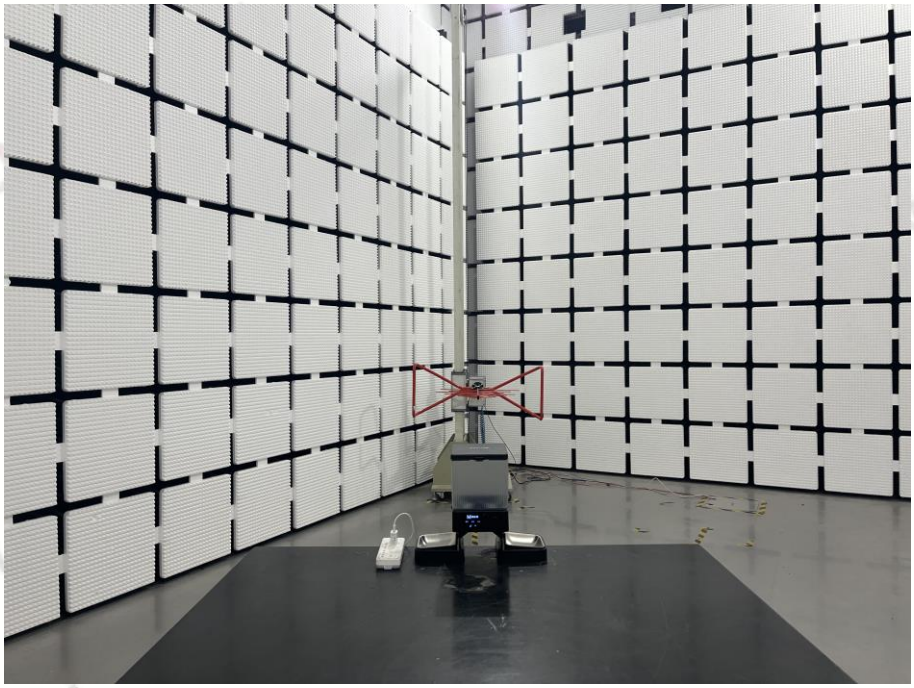
Remark: Result = Reading Level + Factor, Margin = Result – Limit
Factor = Ant. Factor + Cable Loss – Pre-amplifier

Remark：

1. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, emission from 9kHz to 30MHz are more than 20dB below the limit, so it was not recorded in this report.
2. * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
3. The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120kHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10kHz.

5 PHOTO OF TEST

RADIATED EMISSION



30MHz-1000MHz

CONDUCTED EMISSION

End of Report