



FCC Part 15C Test Report

FCC ID: 2BPWP-QS-B

Applicant: Shenzhen Junying Industrial Co., Ltd

Address: Room 1303A-2, 13th Floor, West Tower Building, Star River Twin Towers, No. 8, Yaxing Road, Bantian Sub-district, Longgang District, Shenzhen, China

Manufacturer: Shenzhen Junying Industrial Co., Ltd

Address: Room 1303A-2, 13th Floor, West Tower Building, Star River Twin Towers, No. 8, Yaxing Road, Bantian Sub-district, Longgang District, Shenzhen, China

Product Name: Massager

Trade Mark: N/A

Model Number: QS-B

Date of Receipt: May 13, 2025

Test Date: May 13, 2025 - Jun. 05, 2025

Date of Report: Jun. 05, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: FCC PART 15 C 15.247
ANSI C63.10:2013

Test Result: Pass

Report Number: DLE-250529009R

Prepared by(Engineer): Ken Tan

Reviewer(Supervisor): Jack Bu

Approved(Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



Table of Contents	Page
1. SUMMARY OF TEST RESULTS	4
1.1 MEASUREMENT UNCERTAINTY	4
2. GENERAL INFORMATION	5
2.1 GENERAL DESCRIPTION OF EUT	5
2.2 DESCRIPTION OF TEST MODES	6
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	7
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	7
2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS	8
3. EMC EMISSION TEST	10
3.1 CONDUCTED EMISSION MEASUREMENT	10
3.1.1 POWER LINE CONDUCTED EMISSION Limits	10
3.1.2 TEST PROCEDURE	10
3.1.3 DEVIATION FROM TEST STANDARD	10
3.1.4 TEST SETUP	11
3.1.5 EUT OPERATING CONDITIONS	11
3.1.6 TEST RESULTS	11
3.2 RADIATED EMISSION MEASUREMENT	14
3.2.1 RADIATED EMISSION LIMITS	14
3.2.2 TEST PROCEDURE	15
3.2.3 DEVIATION FROM TEST STANDARD	15
3.2.4 TEST SETUP	15
3.2.5 EUT OPERATING CONDITIONS	16
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	17
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	18
3.2.8 TEST RESULTS (1GHZ~25GHZ)	20
3.3 RADIATED BAND EMISSION MEASUREMENT	21
3.3.1 TEST REQUIREMENT:	21
3.3.2 TEST PROCEDURE	21
3.3.3 DEVIATION FROM TEST STANDARD	21
3.3.4 TEST SETUP	22
3.3.5 EUT OPERATING CONDITIONS	22
3.4 CONDUCTED BAND EDGE EMISSION&CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	24
3.4.1 APPLICABLE STANDARD	24
3.4.2 TEST PROCEDURE	24
3.4.3 DEVIATION FROM STANDARD	24
3.4.4 TEST SETUP	24



Table of Contents	Page
3.4.5 EUT OPERATION CONDITIONS	24
3.4.6 TEST RESULTS	24
4. PEAK OUTPUT POWER	25
4.1 APPLIED PROCEDURES / LIMIT	25
4.1.1 TEST PROCEDURE	25
4.1.2 DEVIATION FROM STANDARD	25
4.1.3 TEST SETUP	25
4.1.4 EUT OPERATION CONDITIONS	25
4.1.5 TEST RESULTS	25
5. POWER SPECTRAL DENSITY TEST	26
5.1 APPLIED PROCEDURES / LIMIT	26
5.1.1 TEST PROCEDURE	26
5.1.2 DEVIATION FROM STANDARD	26
5.1.3 TEST SETUP	26
5.1.4 EUT OPERATION CONDITIONS	26
5.1.5 TEST RESULTS	26
6. 6DB BANDWIDTH TEST	27
6.1 APPLIED PROCEDURES / LIMIT	27
6.1.1 TEST PROCEDURE	27
6.1.2 DEVIATION FROM STANDARD	27
6.1.3 TEST SETUP	27
6.1.4 EUT OPERATION CONDITIONS	27
6.1.5 TEST RESULTS	27
7. ANTENNA REQUIREMENT	28
7.1 STANDARD REQUIREMENT	28
7.2 EUT ANTENNA	28
8. TEST SEUUP PHOTO	29
9. EUT PHOTO	29



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.205, 15.209, 15.247(d)	Radiated Spurious Emission	PASS	
15.205, 15.247(d)	Band Edge Emission& Conducted Spurious Emissions	PASS	
15.247(b)	Peak Output Power	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

Test lab: Shenzhen DL Testing Technology Co., Ltd.

101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1

Address: Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118

1.1 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power,conducted	$\pm 0.42\text{dB}$
3	Spurious emissions,conducted	$\pm 2.76\text{dB}$
4	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$
8	6dB Bandwidth	$\pm 0.2\text{MHz}$
9	Power Spectral Density	$\pm 2.45\text{dBm}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Massager
Trade Mark	N/A
Model No.:	QS-B
Model Difference	N/A
Sample ID:	DLE-250529009-001#
Operation Frequency:	2.4G WIFI: 2412~2462 MHz for 802.11b/g/nHT20 2422~2452 MHz for 802.11nHT40
Channel numbers:	2.4G WIFI: 11 Channels for 802.11b/g/n(HT20) 7 Channels for 802.11nHT40
Channel separation:	2.4G WIFI:5MHz
Modulation technology:	2.4G WIFI: 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n(20/40): OFDM(QPSK, BPSK, 16-QAM, 64-QAM)
Rate of Transmitter:	2.4G WIFI: 802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 150Mbps
Antenna Type:	PCB Antenna
Antenna gain:	-3.49 dBi
Power Supply:	DC 5V/1A Battery: DC 3.7V/300mAh

Note:

1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.The EUT's all information provided by client.

WIFI 2.4G Channel List (802.11b/g/nHT20)			
Channel	Frequency (GHz)	Channel	Frequency (GHz)
01	2.412	07	2.442
02	2.417	08	2.447
03	2.422	09	2.452
04	2.427	10	2.457
05	2.432	11	2.462
06	2.437		
Channel List(802.11nHT40)			
Channel	Frequency (GHz)	Channel	Frequency (GHz)
03	2.422	07	2.442
04	2.427	08	2.447
05	2.432	09	2.452
06	2.437		



2.2 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	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11nHT20 CH1/ CH6/ CH11
Mode 4	802.11nHT40 CH3/ CH6/ CH09

For Conducted Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11nHT20 CH1/ CH6/ CH11
Mode 4	802.11nHT40 CH3/ CH6/ CH09

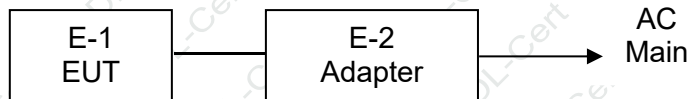
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11nHT20 CH1/ CH6/ CH11
Mode 4	802.11nHT40 CH3/ CH6/ CH09

Note: 1. The measurements are performed at the highest, middle, lowest available channels.

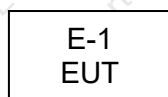


2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



Radiated Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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/Type No.	Series No.	Note
E-1	Massager	QS-B	N/A	EUT
E-2	Adapter	HW-0502000E	N/A	AE

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, Band-edge test and 6db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 01, 2024	Oct. 31, 2025
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 01, 2024	Oct. 31, 2025
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 01, 2024	Oct. 31, 2025
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 01, 2024	Oct. 31, 2025
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 01, 2024	Oct. 31, 2025
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 01, 2024	Oct. 31, 2025
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 01, 2024	Oct. 31, 2025
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 01, 2024	Oct. 31, 2025
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 01, 2024	Oct. 31, 2025
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 01, 2024	Oct. 31, 2025
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 01, 2024	Oct. 31, 2025
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 01, 2024	Oct. 31, 2025
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 01, 2024	Oct. 31, 2025
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 01, 2024	Oct. 31, 2025
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 01, 2024	Oct. 31, 2025
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 01, 2024	Oct. 31, 2025
17	Power Meter	Ceyear	2438PA/PB	/	Nov. 01, 2024	Oct. 31, 2025
18	Peak/continuous wave power probe	Ceyear	81702F	/	Nov. 01, 2024	Oct. 31, 2025

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Nov. 01, 2024	Oct. 31, 2025
3	LISN	R&S	ENV216	102417	Nov. 01, 2024	Oct. 31, 2025
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 01, 2024	Oct. 31, 2025

Peak Output Power Test Equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Power Meter	Agilent	E4419B	230480	Nov. 01, 2024	Oct. 31, 2025
2	RF Cable	Rosenberger	MWX322	MY50510202	Nov. 01, 2024	Oct. 31, 2025
3	10dB Attenuator	Rosenberger	2AS102-K10S3	N/A	Nov. 01, 2024	Oct. 31, 2025



Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMCC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMCC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.50	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

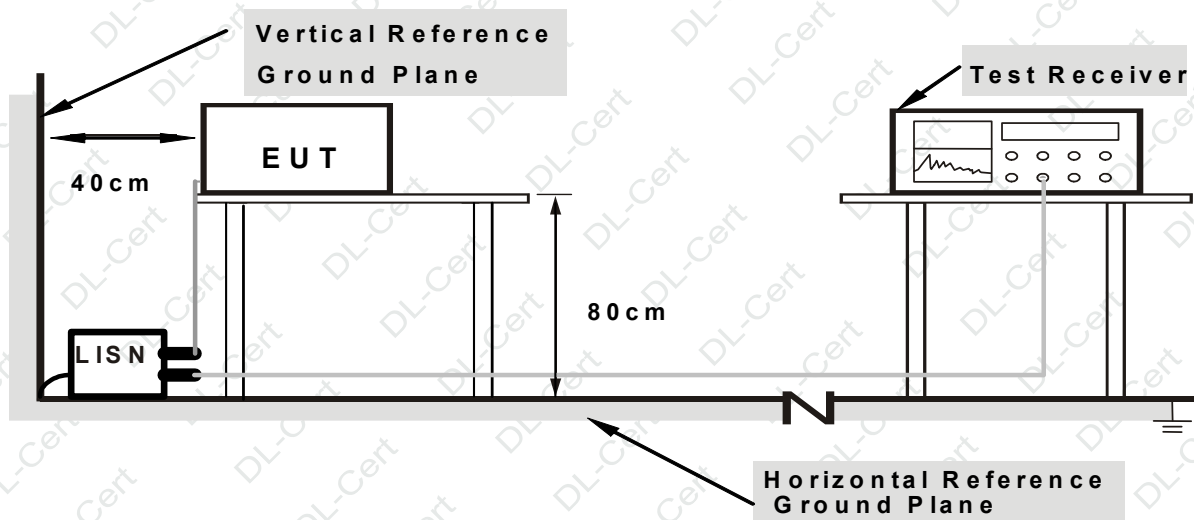
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation



3.1.4 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

3.1.5 EUT OPERATING CONDITIONS

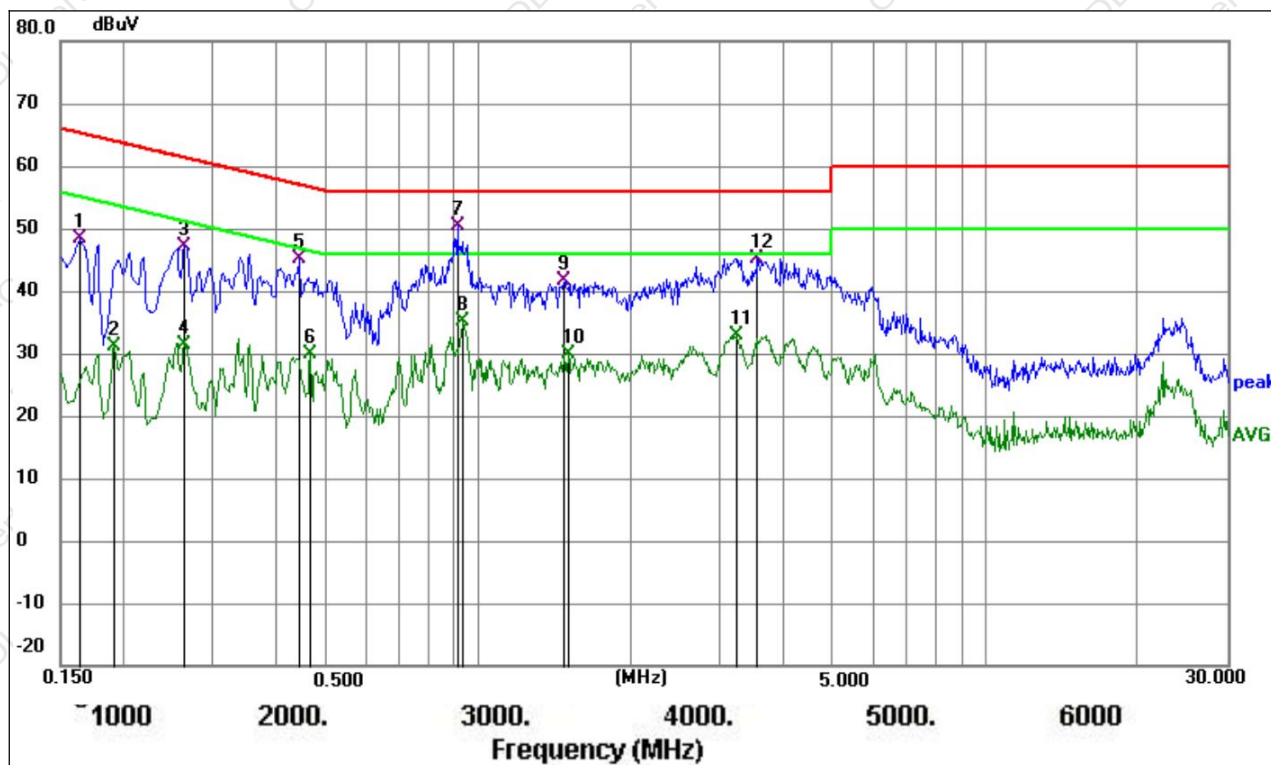
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

All the modulation modes were tested the data of the worst mode (AC 120V/60Hz, 802.11b TX 2412MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



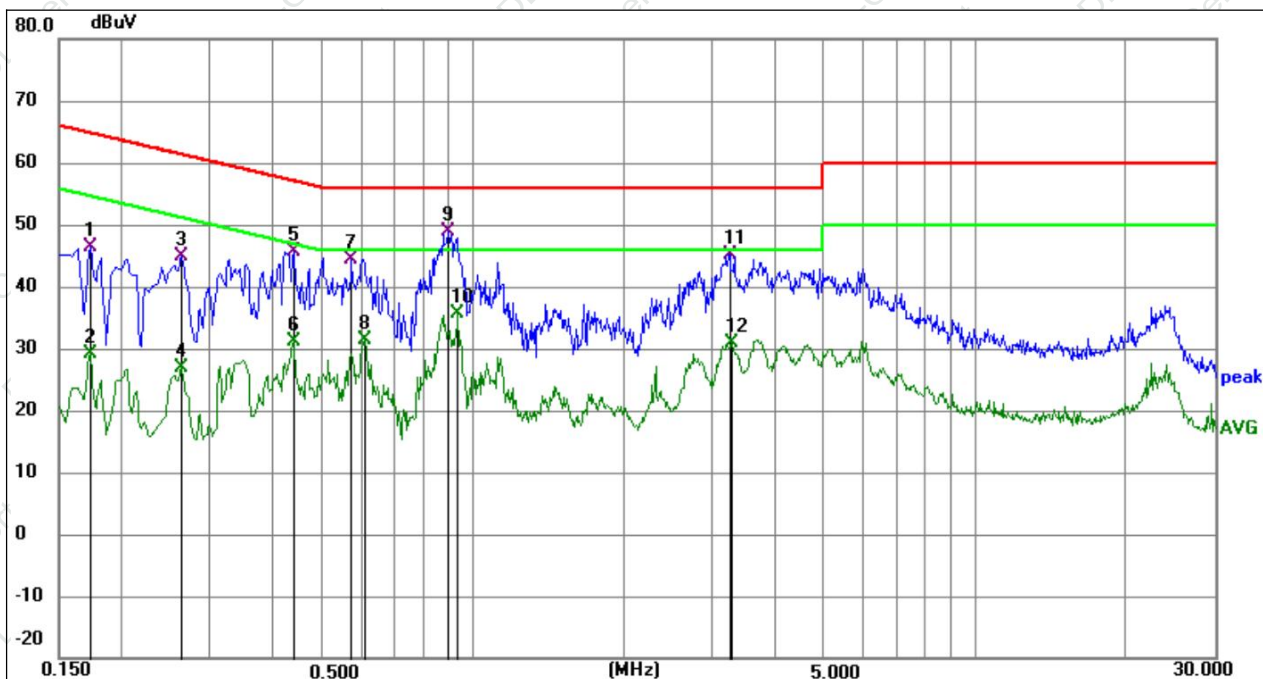
Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1635	37.92	10.48	48.40	65.28	-16.88	QP
2	0.1905	20.57	10.54	31.11	54.01	-22.90	AVG
3	0.2625	36.57	10.56	47.13	61.35	-14.22	QP
4	0.2625	20.92	10.56	31.48	51.35	-19.87	AVG
5	0.4425	34.46	10.57	45.03	57.01	-11.98	QP
6	0.4650	19.34	10.57	29.91	46.60	-16.69	AVG
7 *	0.9103	39.60	10.67	50.27	56.00	-5.73	QP
8	0.9375	24.50	10.67	35.17	46.00	-10.83	AVG
9	1.4819	31.08	10.66	41.74	56.00	-14.26	QP
10	1.5043	19.17	10.66	29.83	46.00	-16.17	AVG
11	3.2324	22.29	10.66	32.95	46.00	-13.05	AVG
12	3.5520	34.50	10.63	45.13	56.00	-10.87	QP



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1723	35.87	10.49	46.36	64.85	-18.49	QP
2	0.1723	18.61	10.49	29.10	54.85	-25.75	AVG
3	0.2625	34.37	10.56	44.93	61.35	-16.42	QP
4	0.2625	16.22	10.56	26.78	51.35	-24.57	AVG
5	0.4380	35.03	10.57	45.60	57.10	-11.50	QP
6	0.4380	20.45	10.57	31.02	47.10	-16.08	AVG
7	0.5730	33.72	10.62	44.34	56.00	-11.66	QP
8	0.6090	20.84	10.63	31.47	46.00	-14.53	AVG
9 *	0.8923	38.25	10.68	48.93	56.00	-7.07	QP
10	0.9375	24.87	10.67	35.54	46.00	-10.46	AVG
11	3.2550	34.39	10.65	45.04	56.00	-10.96	QP
12	3.2910	20.21	10.65	30.86	46.00	-15.14	AVG



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	25GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre.
- Test the EUT in the lowest channel, the middle channel, the Highest channel

Note:

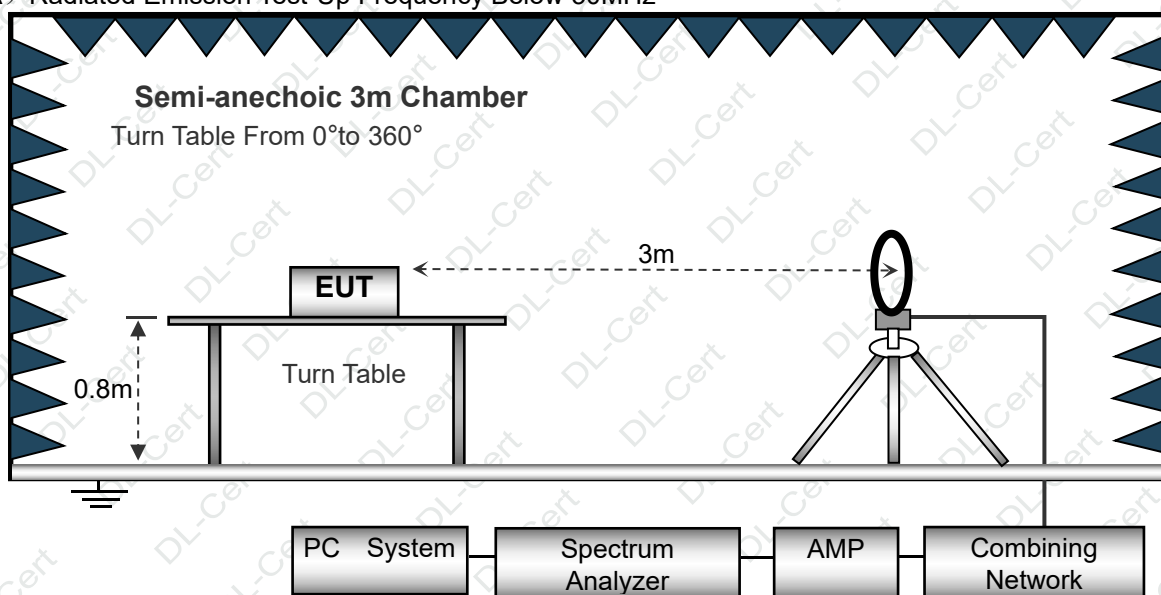
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

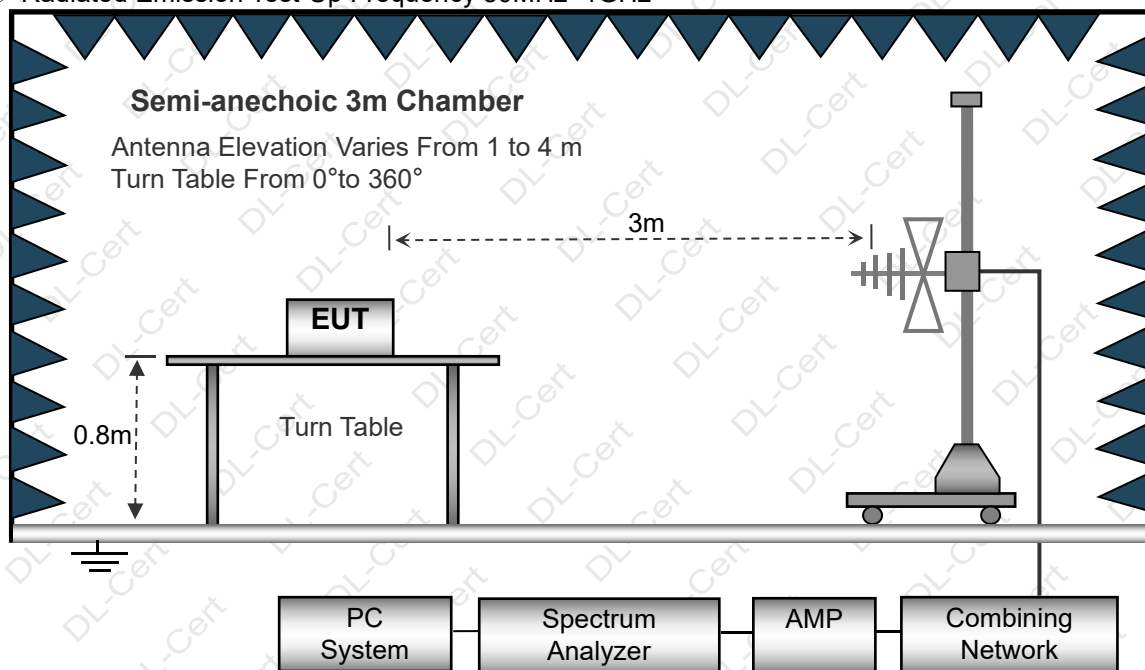
No deviation

3.2.4 TEST SETUP

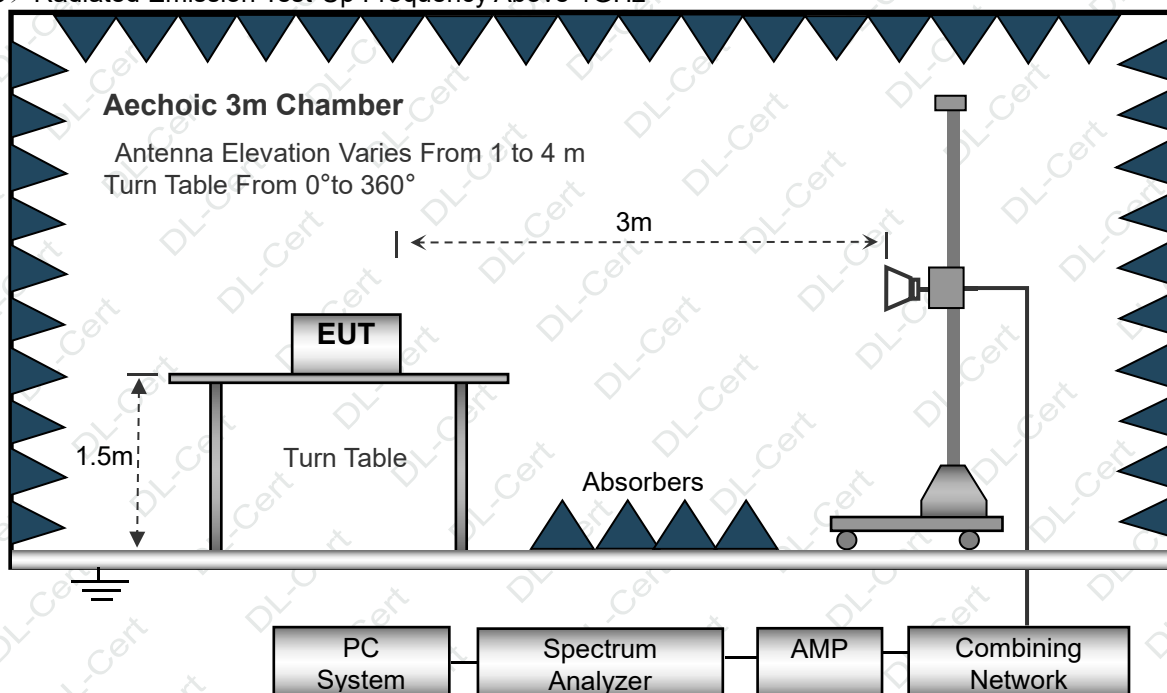
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

**3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)**

Temperature:	20℃	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 1	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

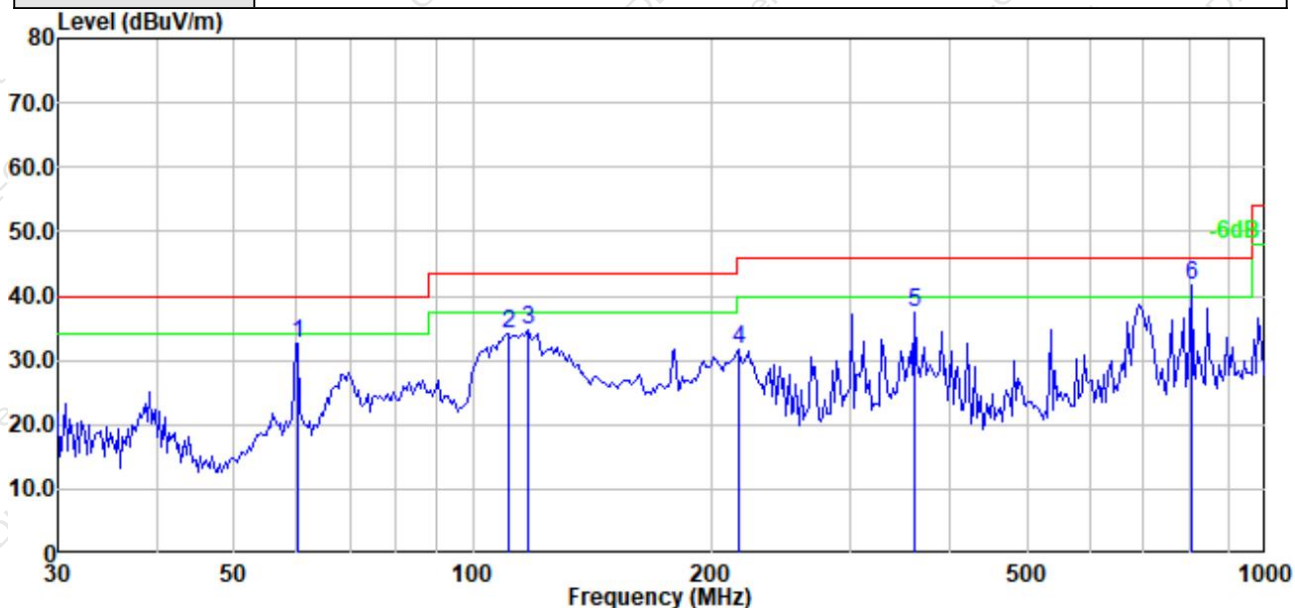
Limit line = specific limits(dBuv) + distance extrapolation factor.



3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

All the modulation modes were tested the data of the worst mode (802.11b TX 2412MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V		
Test Mode :	Mode 1		



	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dBuV/m	dB/m	dBuV/m	dB		
1	60.153	54.01	32.67	-21.34	40.00	-7.33	Horizontal	QP
2	110.858	56.41	34.16	-22.25	43.50	-9.34	Horizontal	QP
3	117.269	56.14	34.63	-21.51	43.50	-8.87	Horizontal	QP
4	216.120	53.33	31.79	-21.54	46.00	-14.21	Horizontal	QP
5	360.978	53.79	37.55	-16.24	46.00	-8.45	Horizontal	QP
6	804.252	49.24	41.52	-7.72	46.00	-4.48	Horizontal	QP

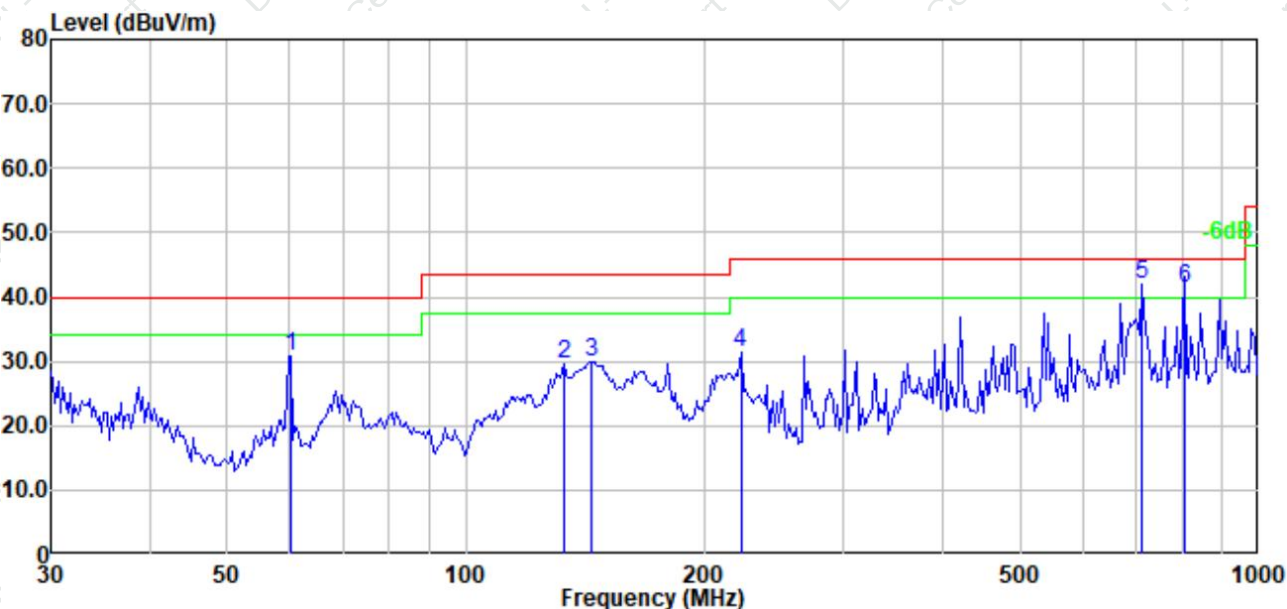
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;



Temperature:	26°C	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 3.7V		
Test Mode :	Mode 1		



	Read Freq	Level	Level	Factor	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dBuV/m	dB/m	dBuV/m	dB		
1	60.153	52.28	30.94	-21.34	40.00	-9.06	Vertical	QP
2	133.081	49.85	29.50	-20.35	43.50	-14.00	Vertical	QP
3	143.776	49.51	29.97	-19.54	43.50	-13.53	Vertical	QP
4	222.281	52.50	31.40	-21.10	46.00	-14.60	Vertical	QP
5	713.692	51.22	42.09	-9.13	46.00	-3.91	Vertical	QP
6	804.252	49.01	41.29	-7.72	46.00	-4.71	Vertical	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;



3.2.8 TEST RESULTS (1GHZ~25GHZ)

During the test, pre-scan 802.11b, g, n (HT20), n (HT40) mode, and find that 802.11n (HT40) mode was worse. The report only records this mode.

WIFI 2.4GHz: 802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2422									
V	4844	66.34	50.65	6.88	31.29	53.86	74.00	-20.14	PK
V	4844	55.88	50.65	6.88	31.29	43.40	54.00	-10.60	AV
V	7266	66.33	49.98	7.16	36.63	60.14	74.00	-13.86	PK
V	7266	46.75	49.98	7.16	36.63	40.56	54.00	-13.44	AV
V	16087	46.36	51.53	11.34	41.52	47.69	74.00	-26.31	PK
H	4844	66.94	50.65	6.88	31.29	54.46	74.00	-19.54	PK
H	4844	55.73	50.65	6.88	31.29	43.25	54.00	-10.75	AV
H	7266	65.08	49.98	7.16	36.63	58.89	74.00	-15.11	PK
H	7266	47.86	49.98	7.16	36.63	41.67	54.00	-12.33	AV
H	16087	48.07	51.53	11.34	41.52	49.40	74.00	-24.60	PK
operation frequency:2437									
V	4874	66.72	50.67	6.89	31.38	54.32	74.00	-19.68	PK
V	4874	54.55	50.67	6.89	31.38	42.15	54.00	-11.85	AV
V	7311	65.67	50.02	7.24	36.63	59.52	74.00	-14.48	PK
V	7311	48.06	50.02	7.24	36.63	41.91	54.00	-12.09	AV
V	16087	47.34	51.53	11.34	41.52	48.67	74.00	-25.33	PK
H	4874	66.13	50.67	6.89	31.38	53.73	74.00	-20.27	PK
H	4874	54.04	50.67	6.89	31.38	41.64	54.00	-12.36	AV
H	7311	65.82	50.02	7.24	36.63	59.67	74.00	-14.33	PK
H	7311	47.08	50.02	7.24	36.63	40.93	54.00	-13.07	AV
H	16087	46.89	51.53	11.34	41.52	48.22	74.00	-25.78	PK
operation frequency:2452									
V	4904	67.44	50.79	6.83	31.36	54.84	74.00	-19.16	PK
V	4904	54.36	50.79	6.83	31.36	41.76	54.00	-12.24	AV
V	7356	65.05	50.11	7.25	36.58	58.77	74.00	-15.23	PK
V	7356	46.87	50.11	7.25	36.58	40.59	54.00	-13.41	AV
V	16087	48.36	51.53	11.34	41.52	49.69	74.00	-24.31	PK
H	4904	67.55	50.79	6.83	31.36	54.95	74.00	-19.05	PK
H	4904	54.68	50.79	6.83	31.36	42.08	54.00	-11.92	AV
H	7356	65.74	50.11	7.25	36.58	59.46	74.00	-14.54	PK
H	7356	47.43	50.11	7.25	36.58	41.15	54.00	-12.85	AV
H	16087	48.05	51.53	11.34	41.52	49.38	74.00	-24.62	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.205

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

1. The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
7. Test the EUT in the lowest channel,the Highest channel

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

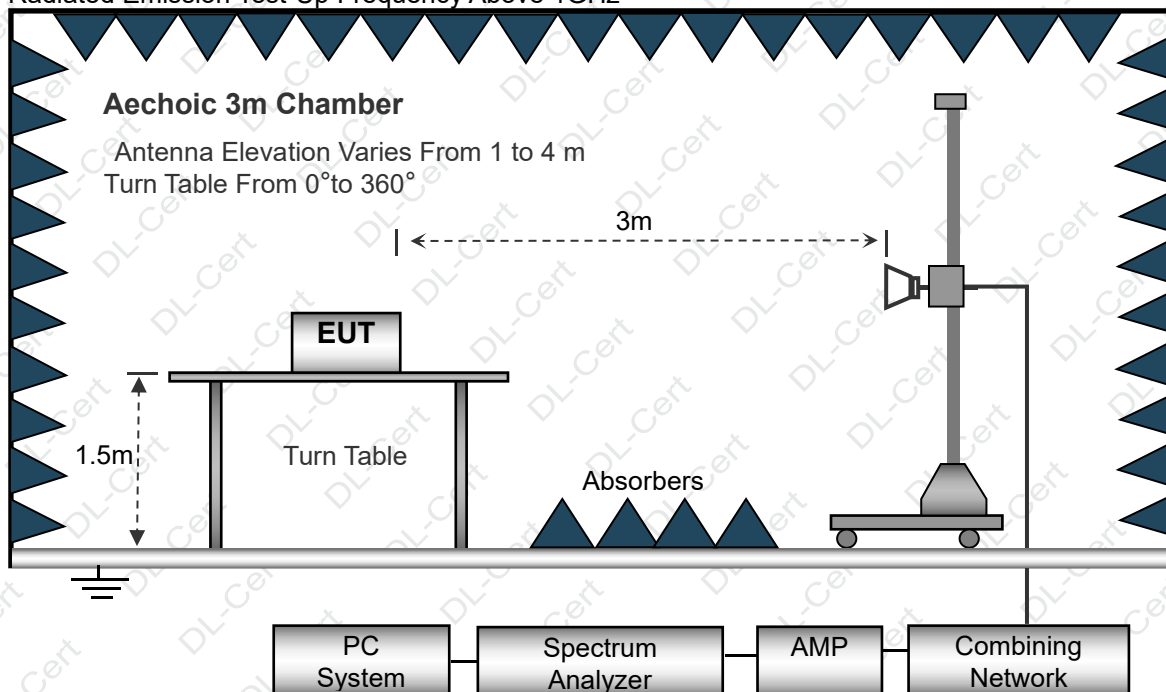
3.3.3 DEVIATION FROM TEST STANDARD

No deviation



3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.3.6 TEST RESULT

During the test, pre-scan 802.11b, g, n (HT20), n (HT40) mode, and find that 802.11n (HT40) mode was worse. The report only records this mode.

WIFI 2.4GHz: 802.11n HT40

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2422									
V	2390	76.85	52.12	2.73	27.38	54.84	74.00	-19.16	PK
V	2390	65.78	52.12	2.73	27.38	43.77	54.00	-10.23	AV
V	2400	77.56	52.16	2.78	27.41	55.59	74.00	-18.41	PK
V	2400	65.78	52.16	2.78	27.41	43.81	54.00	-10.19	AV
H	2390	77.78	52.12	2.73	27.38	55.77	74.00	-18.23	PK
H	2390	65.37	52.12	2.73	27.38	43.36	54.00	-10.64	AV
H	2400	76.50	52.16	2.78	27.41	54.53	74.00	-19.47	PK
H	2400	65.69	52.16	2.78	27.41	43.72	54.00	-10.28	AV

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2452									
V	2483.5	77.74	52.23	2.86	27.44	55.81	74.00	-18.19	PK
V	2483.5	65.34	52.23	2.86	27.44	43.41	54.00	-10.59	AV
V	2500	76.85	52.26	2.88	27.49	54.96	74.00	-19.04	PK
V	2500	65.83	52.26	2.88	27.49	43.94	54.00	-10.06	AV
H	2483.5	77.80	52.23	2.86	27.44	55.87	74.00	-18.13	PK
H	2483.5	65.72	52.23	2.86	27.44	43.79	54.00	-10.21	AV
H	2500	76.56	52.26	2.88	27.49	54.67	74.00	-19.33	PK
H	2500	66.78	52.26	2.88	27.49	44.89	54.00	-9.11	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

**3.4 CONDUCTED BAND EDGE EMISSION&CONDUCTED SPURIOUS EMISSIONS MEASUREMENT**

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidance v05r02

3.4.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

3.4.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

Set the RBW = 100KHz.

Set the VBW = 300KHz.

Sweep time = auto couple.

Detector function = peak.

Trace mode = max hold.

Allow trace to fully stabilize.

3.4.3 DEVIATION FROM STANDARD

No deviation.

3.4.4 TEST SETUP**3.4.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.6 TEST RESULTS

Pass

Please refer to Appendix I WIFI 2.4G Test Data.



4. PEAK OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

4.1.1 TEST PROCEDURE

The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously.

Measure the conducted output power and record the results in the test report.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

Pass

Please refer to Appendix I WIFI 2.4G Test Data.



5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	= the frequency band of operation
RB	RBW $\geq$ 3kHz
VB	VBW $\geq$ 3RBW
Detector	power averaging (rms) or sample detector (when rms not available).
Trace	rms/average
Sweep Time	Auto

5.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

Pass

Please refer to Appendix I WIFI 2.4G Test Data.

**6. 6DB BANDWIDTH TEST****6.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range(MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP**6.1.4 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

Pass

Please refer to Appendix I WIFI 2.4G Test Data.



7. ANTENNA REQUIREMENT

7.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

7.2 EUT ANTENNA

The EUT antenna is PCB Antenna, It comply with the standard requirement.



8. TEST SEUUP PHOTO

Reference to the appendix for details.

9. EUT PHOTO

Reference to the appendix for details.

***** END OF REPORT *****