



FCC TEST REPORT

FCC ID:2ATOXT800RX1

Applicant: Shenzhen Wellturn Technology Co., Ltd
Address: Room 606, Building F, Lvcai Zhihui Park, Liuxian 2nd Road, 71 District, Xin'an Street, Bao'an District, Shenzhen City, China
Manufacturer: Shenzhen Wellturn Technology Co., Ltd
Address: Room 606, Building F, Lvcai Zhihui Park, Liuxian 2nd Road, 71 District, Xin'an Street, Bao'an District, Shenzhen City, China
EUT: Smart Remote Dog Trainer
Trade Mark: N/A
Model Number: T810PRO
T810,T800PRO,T820,T820PRO,T830,T830PRO
Date of Receipt: Jun. 26, 2025
Test Date: Jun. 26, 2025 - Jul. 24, 2025
Date of Report: Jul. 24, 2025
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road Baolong Industrial Zone, Baolong Street, Longgang Shenzhen, Guangdong, China
Applicable Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249
ANSI C63.10:2013
Test Result: Pass
Report Number: DLE-250712002R

Prepared (Test Engineer): Dimon 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. VERSION	3
2. TEST SUMMARY	4
2.1 TEST FACILITY	5
2.2 MEASUREMENT UNCERTAINTY	5
3.1 GENERAL DESCRIPTION OF EUT	6
3.2 Test Setup Configuration	7
3.3 Support Equipment	7
4. EMC EMISSION TEST	9
4.1 Conducted emissions	9
4.1.1 POWER LINE CONDUCTED EMISSION Limits	9
4.1.2 TEST PROCEDURE	9
4.1.3 DEVIATION FROM TEST STANDARD	9
4.1.4 TEST SETUP	10
4.1.5 EUT OPERATING CONDITIONS	10
4.1.6 Test Result	11
4.2 Radiated emissions	13
4.2.1 Radiated Emission Limits	13
4.2.2 TEST PROCEDURE	14
4.2.3 DEVIATION FROM TEST STANDARD	14
4.2.4 TEST SETUP	14
4.2.5 EUT OPERATING CONDITIONS	16
4.2.6 TEST RESULTS	16
5. RADIATED BAND EMISSION MEASUREMENT	20
5.1 Test Requirement:	20
5.2 TEST PROCEDURE	20
5.3 DEVIATION FROM TEST STANDARD	21
5.4 TEST SETUP	21
5.5 EUT OPERATING CONDITIONS	21
5.6 TEST RESULT	22
6. 20DB BANDWIDTH	23
6.1 Test Setup	23
6.2 Limit	23
6.3 Test procedure	23
6.4 DEVIATION FROM STANDARD	23
6.5 Test Result	24
7. ANTENNA REQUIREMENT	25
8. TEST SETUP PHOTO	26
9. EUT CONSTRUCTIONAL DETAILS	26



1. VERSION

Report No.	Version	Description	Approved
DLE-250712002R	Rev.01	Initial issue of report	Jul. 24, 2025



2. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part15 (15.249) , Subpart C			
Standard Section	Test Item	Result	Remark
15.203	Antenna Requirement	PASS	
15.207	AC Power Line Conducted Emission	PASS	
15.215 (c)	20dB Occupied Bandwidth	PASS	
15.209/15.249	Radiated Emission and Fundamental	PASS	
15.205/15.209	Restricted Band	PASS	

NOTE:

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



2.1 TEST FACILITY

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

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Roa Baolong Industrial Zone, Baolong Street, Longgang Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.:CN0118

ISED Registration number: 27485

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$ · 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 % °

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	Bandwidth	$\pm 1.5 \times 10^{-6}$
3	RF power,conducted	$\pm 0.42\text{dB}$
4	Spurious emissions,conducted	$\pm 2.76\text{dB}$
5	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
6	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
7	Temperature	$\pm 0.5^{\circ}\text{C}$
8	Humidity	$\pm 2\%$



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Smart Remote Dog Trainer
Model No.:	T810PRO
Model Different.:	Only for different model name
Serial No.:	T810,T800PRO,T820,T820PRO,T830,T830PRO
Sample(s) Status:	Engineer sample
Channel numbers:	1
Operation Frequency:	2440MHz
Modulation technology:	GFSK
Antenna Type:	Copper antenna
Antenna gain:	1.25dBi
Power supply:	Input: DC 5V Battery: 3.7V, 500mAh,1.85Wh

Channel	Frequency (MHz)				
01	2440				

Note:

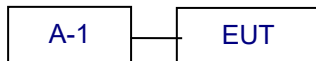
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency
The middle channel	2440MHz



3.2 Test Setup Configuration

Conducted Emission



Radiated Emission



3.3 Support Equipment

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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Smart Remote Dog Trainer	N/A	T810PRO	XJ02	EUT
A-1	AC/DC Adapter	Aohai	A895-200150C-CN1	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

3.4 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Test Software	Secure CRT Portable
Power level setup	<0dBm



3.5 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

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	ChengYu	843 Room	843	Nov. 01, 2024	Oct. 31, 2025
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

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



4. EMC EMISSION TEST

4.1 Conducted emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	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) *Decreases with the logarithm of the frequency.

4.1.2 TEST PROCEDURE

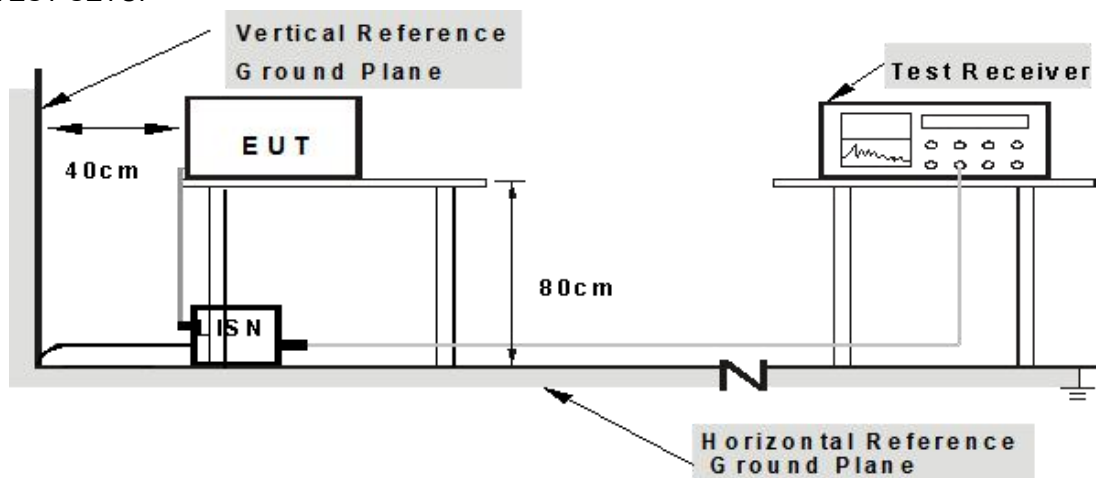
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation



4.1.4 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 cm from other units and other metal planes

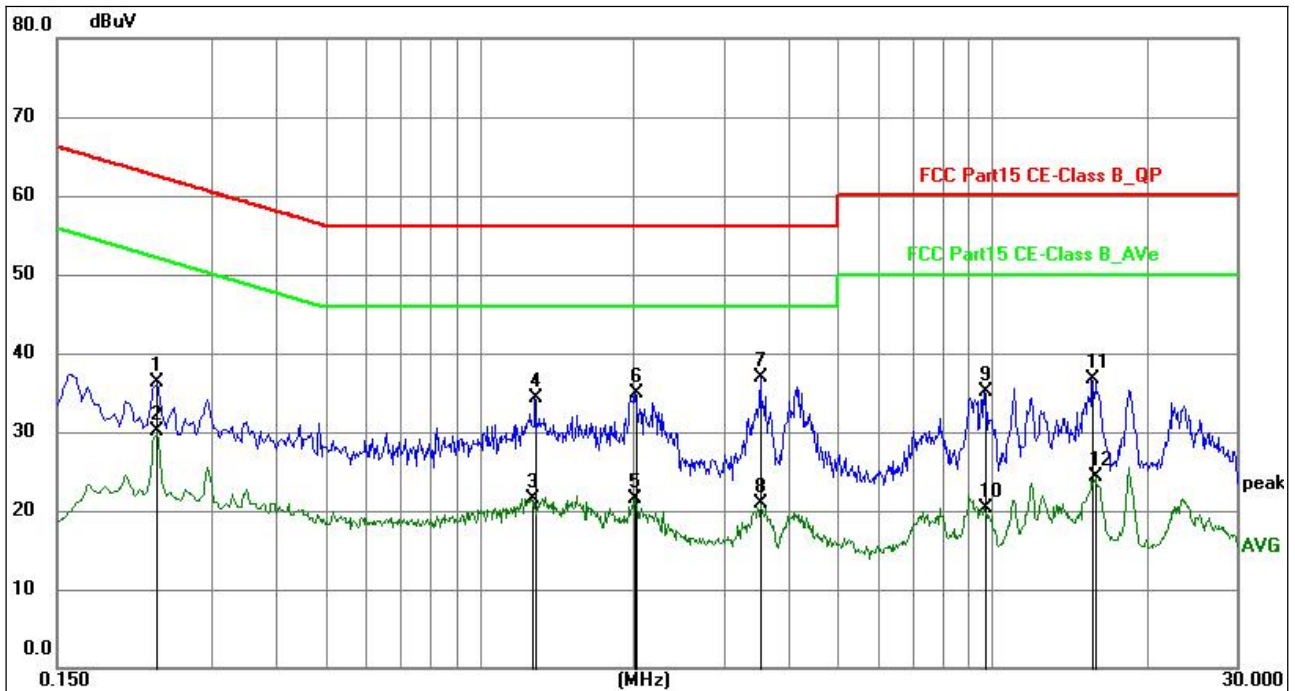
4.1.5 EUT OPERATING CONDITIONS

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.



4.1.6 Test Result

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Mode :	2440MHz



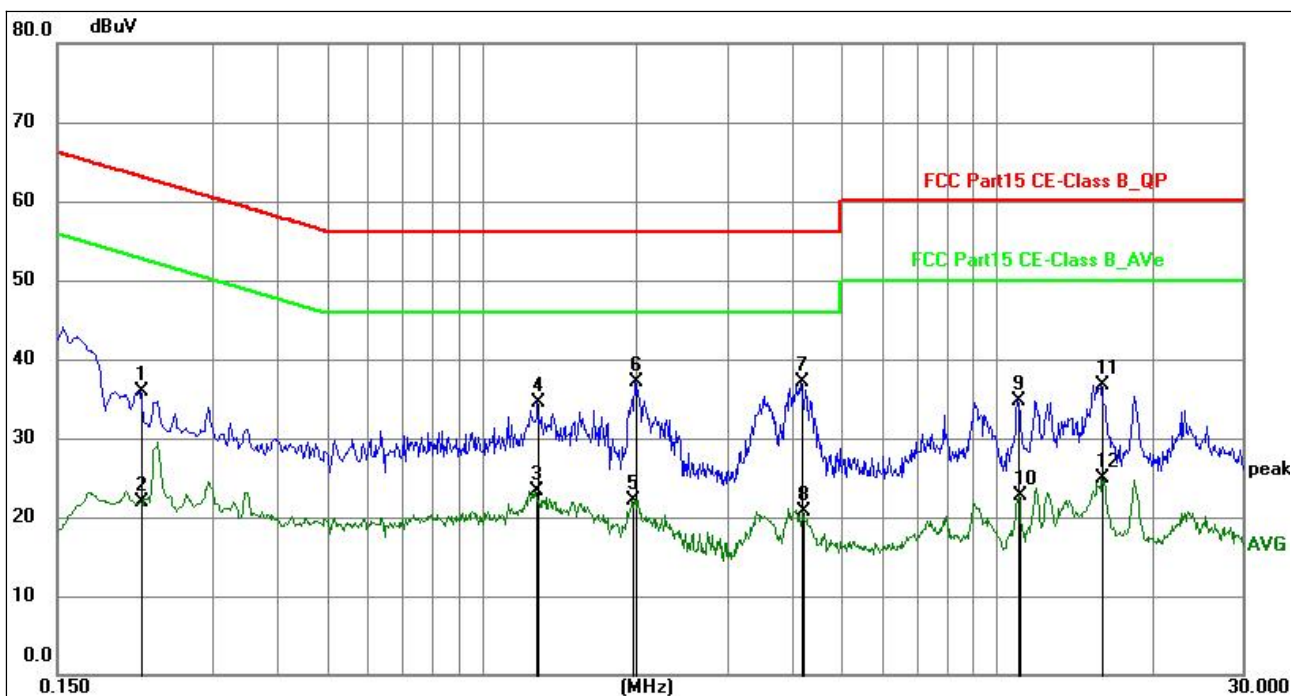
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2353	15.98	20.37	36.35	62.26	-25.91	QP	P	
2	0.2353	9.77	20.37	30.14	52.26	-22.12	AVG	P	
3	1.2659	1.27	20.31	21.58	46.00	-24.42	AVG	P	
4	1.2839	14.09	20.31	34.40	56.00	-21.60	QP	P	
5	2.0038	1.26	20.31	21.57	46.00	-24.43	AVG	P	
6	2.0173	14.65	20.31	34.96	56.00	-21.04	QP	P	
7	3.5430	16.58	20.34	36.92	56.00	-19.08	QP	P	
8	3.5430	0.61	20.34	20.95	46.00	-25.05	AVG	P	
9	9.6539	14.63	20.45	35.08	60.00	-24.92	QP	P	
10	9.6539	-0.11	20.45	20.34	50.00	-29.66	AVG	P	
11	15.7110	16.29	20.49	36.78	60.00	-23.22	QP	P	
12	15.8955	3.83	20.49	24.32	50.00	-25.68	AVG	P	

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor
- 4.The test data shows only the worst case 2440MHz.



Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Mode :	2440MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2174	15.46	20.38	35.84	62.92	-27.08	QP	P	
2	0.2174	1.44	20.38	21.82	52.92	-31.10	AVG	P	
3	1.2701	3.03	20.31	23.34	46.00	-22.66	AVG	P	
4	1.2882	14.17	20.31	34.48	56.00	-21.52	QP	P	
5	1.9677	1.86	20.31	22.17	46.00	-23.83	AVG	P	
6	1.9900	16.79	20.31	37.10	56.00	-18.90	QP	P	
7	4.1730	16.82	20.35	37.17	56.00	-18.83	QP	P	
8	4.2134	0.32	20.35	20.67	46.00	-25.33	AVG	P	
9	10.9905	14.31	20.46	34.77	60.00	-25.23	QP	P	
10	11.0625	2.31	20.46	22.77	50.00	-27.23	AVG	P	
11	15.9809	16.28	20.49	36.77	60.00	-23.23	QP	P	
12	15.9809	4.40	20.49	24.89	50.00	-25.11	AVG	P	

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor
- 4.The test data shows only the worst case 2440MHz.



4.2 Radiated emissions

Test Requirement:	FCC Part15 C Section 15.209/15.249				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	MX5Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

4.2.1 Radiated Emission Limits

Frequencies (MHz)	Field Strength (micровolts/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

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).

LIMITS OF RADIATED EMISSION MEASUREMENT

Fundamental Frequency	Field Strength of Fundamental @3m (millivolts/meter)	Average Limit @3m (dBuV/m)	Peak Limit @3m (dBuV/m)
900-928MHz	50	94	114
2400-2483.5MHz	50	94	114
5725-5875MHz	50	94	114
24.0-24.25GHz	250	108	128

Note :



1. Average Limit (dB μ V/m)=20 $\times$ log[1000 $\times$ Field Strength (mV/m)].
2. Peak Limit (dB μ V/m)= Average Limit (dB μ V/m)+20dB

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- a. 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.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change from table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
- h. 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

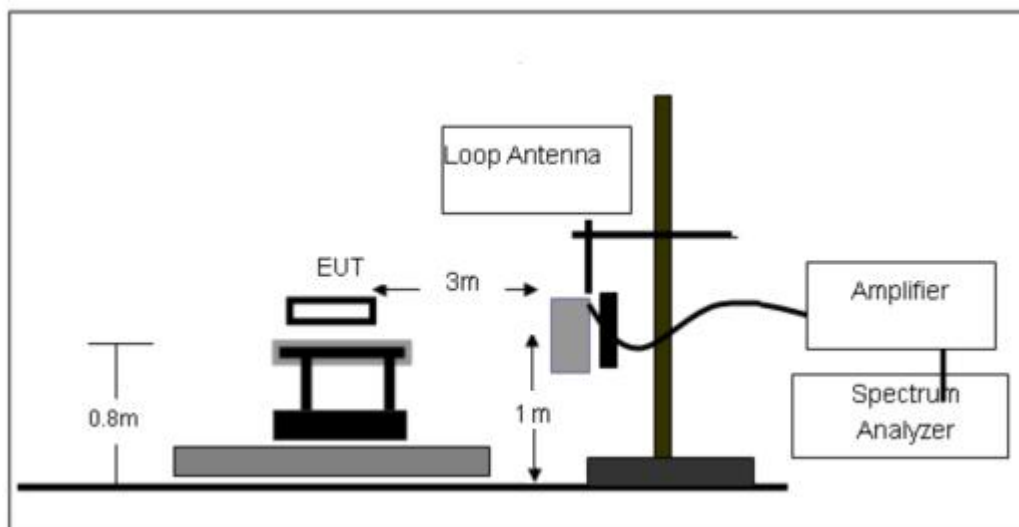
4.2.3 DEVIATION FROM TEST STANDARD

No deviation

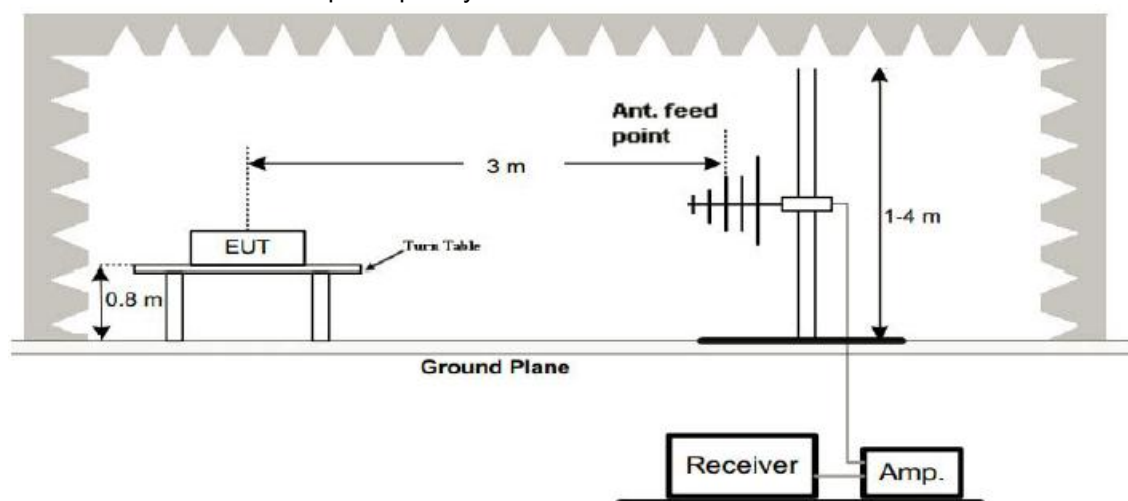
4.2.4 TEST SETUP



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

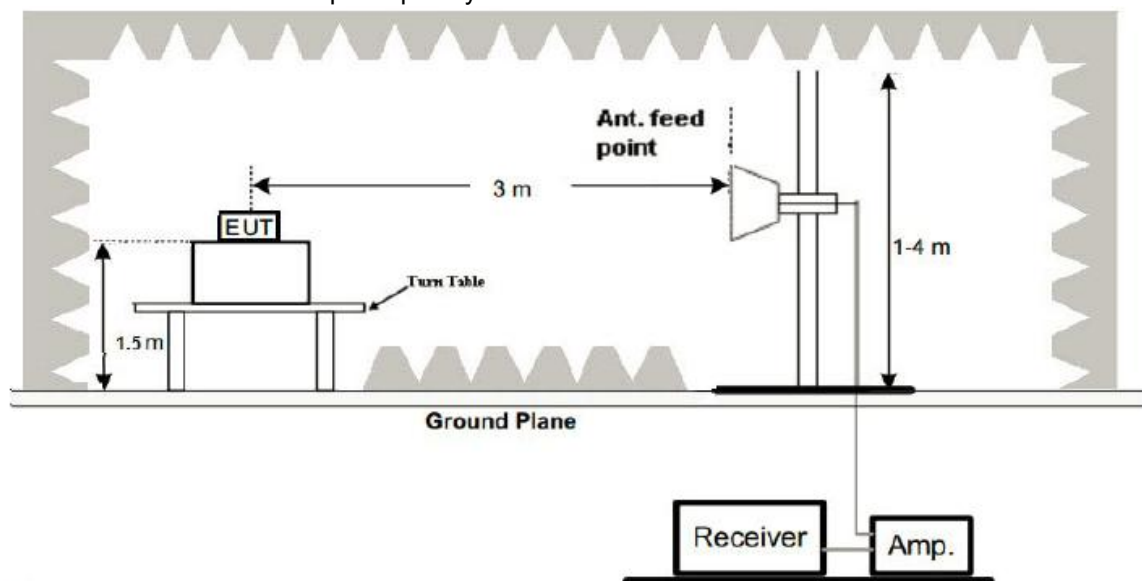


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





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



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.6 TEST RESULTS

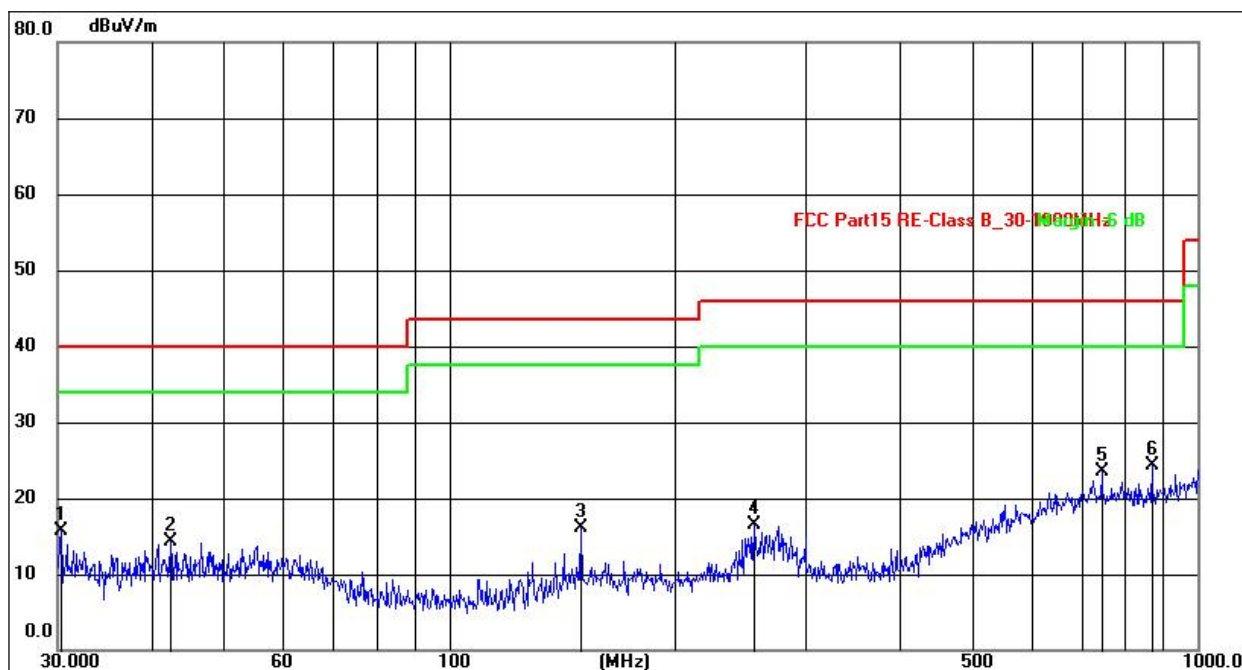
Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.



Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V	Test Channel :	2440MHz



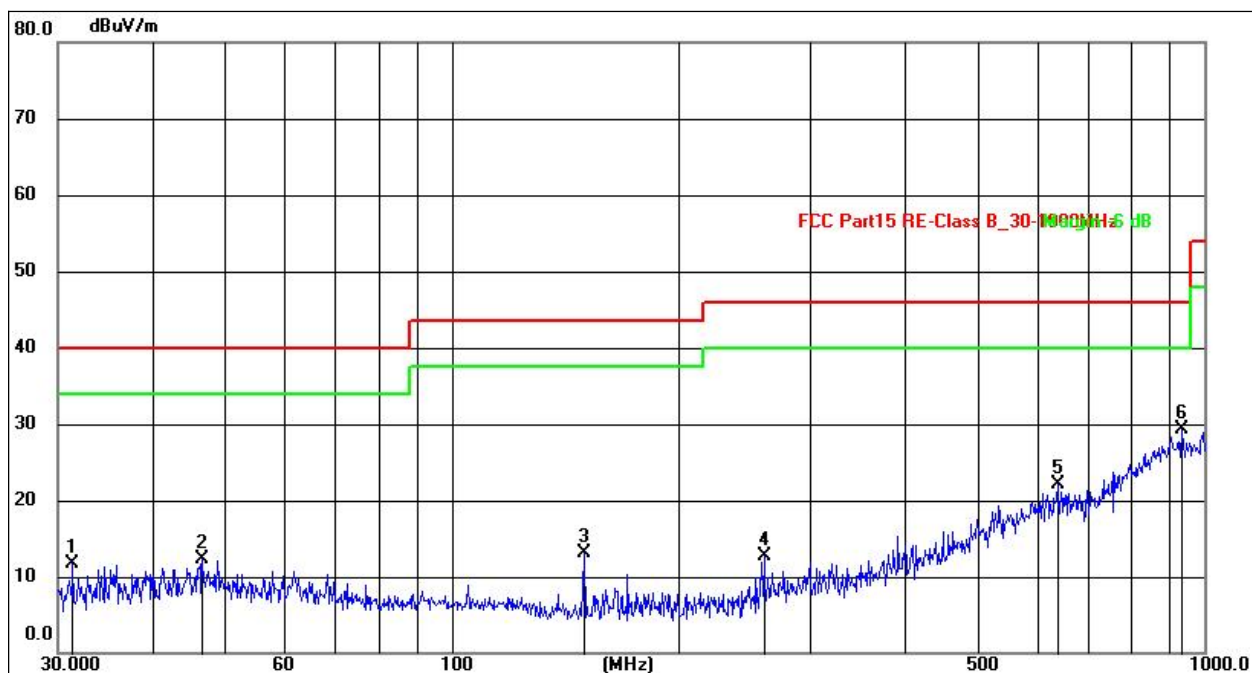
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.3170	29.96	-14.17	15.79	40.00	-24.21	QP
2	42.4508	28.34	-14.01	14.33	40.00	-25.67	QP
3	150.0107	32.50	-16.35	16.15	43.50	-27.35	QP
4	255.6228	31.76	-15.34	16.42	46.00	-29.58	QP
5	744.8659	29.97	-6.53	23.44	46.00	-22.56	QP
6	869.1300	30.91	-6.69	24.22	46.00	-21.78	QP

Notes:

1. An initial pre-scan was performed on the peak detector.
2. Quasi-Peak measurements were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not shown in the test report.
4. Final Level = Reading level + Correct Factor
5. Correct Factor = Antenna factor + Cable loss factor - Amplifier factor
6. Margin = Measurement Level - Limit



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 3.7V	Test Channel :	2440MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.3992	29.80	-18.10	11.70	40.00	-28.30	QP
2	46.6662	29.43	-17.04	12.39	40.00	-27.61	QP
3	150.0107	33.39	-20.35	13.04	43.50	-30.46	QP
4	260.1444	31.99	-19.28	12.71	46.00	-33.29	QP
5	638.3686	29.47	-7.35	22.12	46.00	-23.88	QP
6	932.2712	29.64	-0.27	29.37	46.00	-16.63	QP

Notes:

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
- 3.The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4.Final Level = Reading level + Correct Factor
- 5.Correct Factor= Antenna factor+ Cable loss factor - Amplifier factor
- 6.Margin= Measurement Level-Limit



1GHz~25GHz

Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:2440MHz									
V	2440.00	102.52	30.64	5.26	24.22	101.36	114.00	-12.64	PK
V	2440.00	92.21	30.64	5.26	24.22	91.05	94.00	-2.95	AV
V	4880.00	52.20	30.55	5.77	24.66	52.08	74.00	-21.92	PK
V	4880.00	43.57	30.55	5.77	24.66	43.45	54.00	-10.55	AV
V	7320.00	52.30	30.33	6.32	24.55	52.84	74.00	-21.16	PK
V	7320.00	43.80	30.33	6.32	24.55	44.34	54.00	-9.66	AV
V	9760.00	54.19	30.85	7.45	24.69	55.48	74.00	-18.52	PK
V	9760.00	43.01	30.85	7.45	24.69	44.30	54.00	-9.70	AV
V	12200.00	51.90	31.02	8.99	25.57	55.44	74.00	-18.56	PK
V	12200.00	43.07	31.02	8.99	25.57	46.61	54.00	-7.39	AV
H	2440.00	101.33	30.64	5.26	24.22	100.17	114.00	-13.83	PK
H	2440.00	94.83	30.64	5.26	24.22	93.67	94.00	-0.33	AV
H	4880.00	50.55	30.55	5.77	24.66	50.43	74.00	-23.57	PK
H	4880.00	43.15	30.55	5.77	24.66	43.03	54.00	-10.97	AV
H	7320.00	53.28	30.33	6.32	24.55	53.82	74.00	-20.18	PK
H	7320.00	43.55	30.33	6.32	24.55	44.09	54.00	-9.91	AV
H	9760.00	52.03	30.85	7.45	24.69	53.32	74.00	-20.68	PK
H	9760.00	43.15	30.85	7.45	24.69	44.44	54.00	-9.56	AV
H	12200.00	51.90	31.02	8.99	25.57	55.44	74.00	-18.56	PK
H	12200.00	43.05	31.02	8.99	25.57	46.59	54.00	-7.41	AV



5. RADIATED BAND EMISSION MEASUREMENT

5.1 Test Requirement:

Test Requirement:	FCC Part15 C Section 15.205 and 15.209				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Average	1MHz	3MHz	Average

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	2390MHz
Stop Frequency	2483.5MHz
RB / VB (emission in restricted band)	1 MHz / 3 MHz for Peak, 1 MHz / 3MHz for Average

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- Determination of worst case and emission maximization shall be as per ANSI C63.10. When reporting the data the antenna height and turntable azimuth of the test result shall be indicated.
- If the test lab uses only a peak detector to determine compliance the test plot shall show compliance to the average limit and not the peak limit only. The applicable limit in the test plots below should actually be 54 dBuV/m if average test plots are not provided. If at anytime the peak results exceed the AVG limit, then the test lab shall also provide complete test plots demonstrating AVG detector compliance with the AVG limit.
- The test lab may incorporate path loss, antenna factors etc., into the transducer and/or offset function so long as it is fully described in the test report and the test method and sample calculations accounting for all factors are provided.
- The test equipment used to perform the test shall be fully accounted for in the equipment list, the test method description, and the block diagrams provided.
- Spurious emissions test results shall start or end at the points the band edge test plots terminate. There should be no gaps between band-edge and spurious emissions.

Note:

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

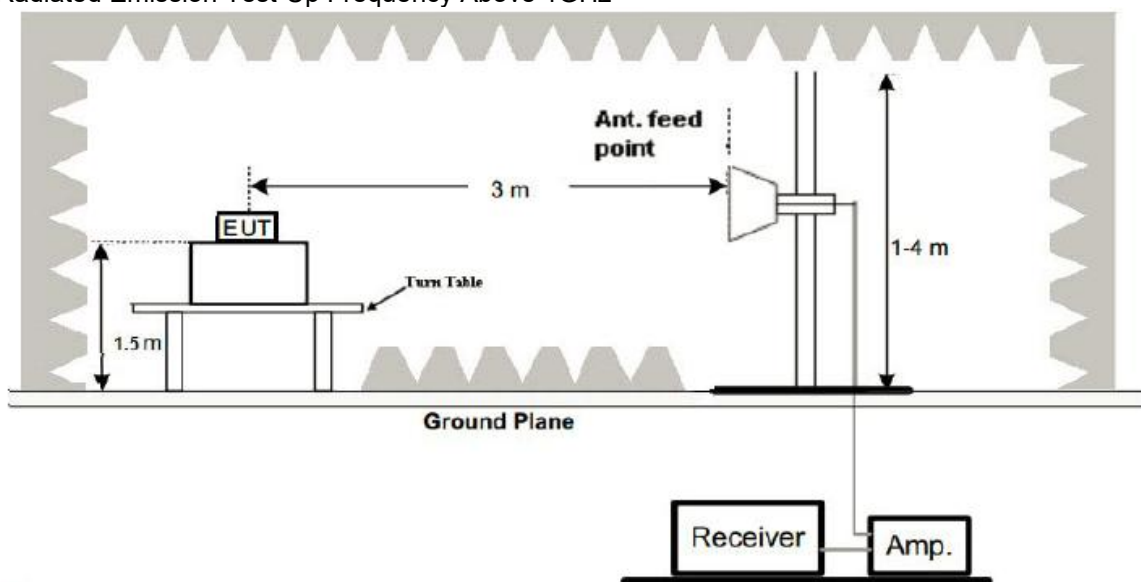


5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.4 Unless otherwise a special operating condition is specified in the follows during the testing.



5.6 TEST RESULT

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Detec tor Type	Result
GFSK	Channel: 2440MHz									
	H	2310.00	54.50	30.22	4.85	23.98	53.11	74.00	PK	PASS
	H	2310.00	44.65	30.22	4.85	23.98	43.26	54.00	AV	PASS
	H	2390.00	53.09	30.22	4.85	23.98	51.70	74.00	PK	PASS
	H	2390.00	44.25	30.22	4.85	23.98	42.86	54.00	AV	PASS
	H	2400.00	54.95	30.22	4.85	23.98	53.56	74.00	PK	PASS
	H	2400.00	44.48	30.22	4.85	23.98	43.09	54.00	AV	PASS
	H	2483.50	54.77	30.22	4.85	23.98	53.38	74.00	PK	PASS
	H	2483.50	44.49	30.22	4.85	23.98	43.10	54.00	AV	PASS
	H	2500.00	54.16	30.22	4.85	23.98	52.77	74.00	PK	PASS
	H	2500.00	44.53	30.22	4.85	23.98	43.14	54.00	AV	PASS
	V	2310.00	54.60	30.22	4.85	23.98	53.21	74.00	PK	PASS
	V	2310.00	44.66	30.22	4.85	23.98	43.27	54.00	AV	PASS
	V	2390.00	53.02	30.22	4.85	23.98	51.63	74.00	PK	PASS
	V	2390.00	44.29	30.22	4.85	23.98	42.90	54.00	AV	PASS
	V	2400.00	53.36	30.22	4.85	23.98	51.97	74.00	PK	PASS
	V	2400.00	44.00	30.22	4.85	23.98	42.61	54.00	AV	PASS
	V	2483.50	53.25	30.22	4.85	23.98	51.86	74.00	PK	PASS
	V	2483.50	44.76	30.22	4.85	23.98	43.37	54.00	AV	PASS
	V	2500.00	53.35	30.22	4.85	23.98	51.96	74.00	PK	PASS
	V	2500.00	44.03	30.22	4.85	23.98	42.64	54.00	AV	PASS



6. 20DB BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.215
Test Method:	ANSI C63.10:2013

6.1 Test Setup



6.2 Limit

FCC Part15 (15.249) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.249(c)	Bandwidth	2400-2483.5	PASS

6.3 Test procedure

1. Set resolution bandwidth (RBW) = 30kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ 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 6 dB relative to the maximum level measured in the fundamental emission.

6.4 DEVIATION FROM STANDARD

No deviation.

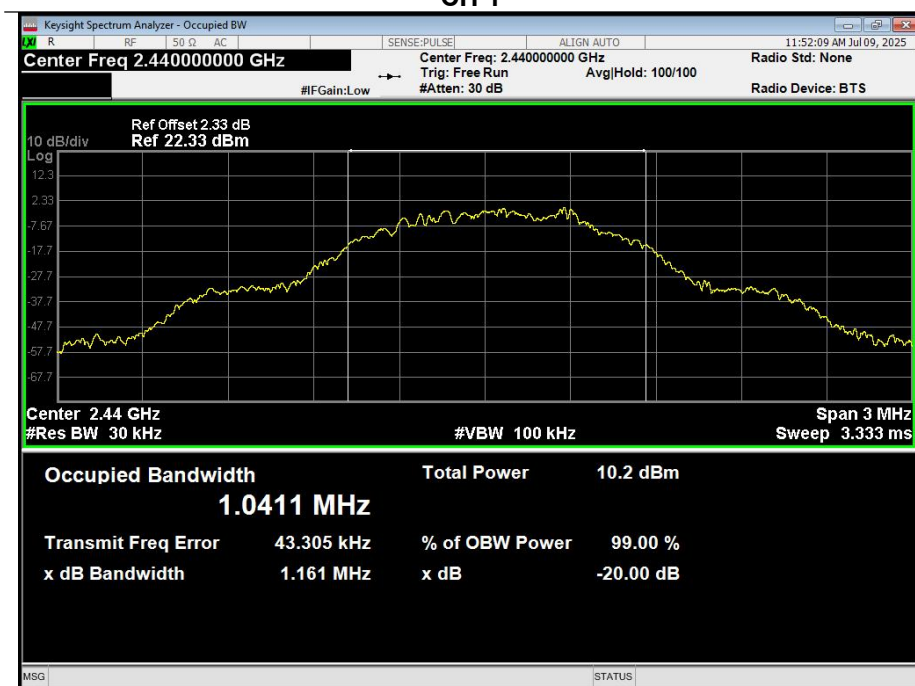


6.5 Test Result

Mode	Test channel	20dB Emission Bandwidth (MHz)	Result
GFSK	2440MHz	1.161	Pass

Test plots

CH 1





7. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203
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.	
EUT Antenna:	
The antenna is Iron Copper antenna, the best case gain of the antennas is 1.25dBi, reference to the appendix II for details	



8. Test Setup Photo

Reference to the appendix I for details.

9. EUT Constructional Details

Reference to the appendix II for details.

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