FCC TEST REPORT
FCC ID:2A8CP-BUMBLE

Report Number.....:	**ZKT-220823L6019E-1**
Date of Test.....	Aug. 22, 2022 to Sep. 21, 2021
Date of issue.....:	Sep. 21, 2021
Total number of pages.....	84
Test Result..... :	PASS
Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address ..... :	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name .....:	**Meshmerize GmbH**
Address ..... :	August-Bebel-Str. 23, 01219 Dresden, Germany
Manufacturer's name .....:	**Meshmerize GmbH**
Address ..... :	August-Bebel-Str. 23, 01219 Dresden, Germany
Test specification:	
Standard..... :	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10:2013
Test procedure..... :	/
Non-standard test method .....:	N/A
Test Report Form No.....:	TRF-EL-110_V0
Test Report Form(s) Originator.....:	ZKT Testing
Master TRF .....:	Dated: 2020-01-06

This device described above has been tested by ZKT, 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.
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Product name.....:	**Industrial grade WIFI6 router**
Trademark .....:	MESHMERIZE
Model/Type reference..... :	Bumble
Ratings..... :	Input: DC 12V/2A from Adapter Input AC 120V/60Hz

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address.....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:	Alen He
Reviewer (name + signature).....:	Joe Liu
Approved (name + signature).....:	Lake Xie

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1. VERSION

Report No.	Version	Description	Approved
ZKT-220823L6019E-1	Rev.01	Initial issue of report	Sep. 21, 2021

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Result	Remark
FCC part 15.203/15.247 (c)	Antenna requirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	PASS	
FCC part 15.247 (b)(3)	Conducted Peak Output Power	PASS	
FCC part 15.247 (a)(2)	Channel Bandwidth& 99% OCB	PASS	
FCC part 15.247 (e)	Power Spectral Density	PASS	
FCC part 15.247(d)	Band Edge	PASS	
FCC part 15.205/15.209	Spurious Emission	PASS	

NOTE:

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

2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033
CAB identifier: CN0110

2.2 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 %。

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF Band Edge	U=1.68dB
7	RF power conducted	U=1.86dB
8	RF conducted Spurious Emission	U=2.2dB
9	RF Occupied Bandwidth	U=1.8dB
10	RF Power Spectral Density	U=1.75dB
11	humidity uncertainty	U=5.3%
12	Temperature uncertainty	U=0.59℃

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Industrial grade WIFI6 router
Model No.:	Bumble
Model Different.:	N/A
Serial No.:	N/A
Hardware Version:	H1.0
Software Version:	S1.0
Sample(s) Status:	Engineer sample
Channel numbers:	802.11b/802.11g /802.11n(HT20)/802.11ax(HE20):11 802.11n(HT40)/802.11ax(VHT40):7
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum(DSSS) 802.11g/802.11n(H20)/802.11n(HT40)/: Orthogonal Frequency Division Multiplexing(OFDM) 802.11ax(HE20)/802.11ax(VHT40) Orthogonal Frequency-Division Multiple Access(OFDMA)
Antenna Type:	External Antenna
Antenna gain:	1.02 dBi@2.4G
Directional gain:	4.03 dBi
Power supply:	Manufacturer: Xiamen shenhai electronics CO., Ltd. Model:P24120200 Input: AC 100-240V 50/60Hz 0.6A Output: DC 12V/2A
Remark:	This product is the same as FCC ID:2A8GQ-SLK-R680, only the Applicant Trademark and model number difference. Because of The customer needs two applicants to apply for FCC ID authentication at same, So we quote the data of the report of FCC ID:2A8GQ-SLK-R680.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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 (MHz)**	
	802.11b/802.11g/802.11n(HT20) /802.11ax(HE20)	802.11n(HT40) 802.11ax(VHT40)
Lowest channel	2412MHz	2422MHz
Middle channel	2437MHz	2437MHz
Highest channel	2462MHz	2452MHz

3.2 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the duty cycle >98%, 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.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	802.11b	802.11g	802.11n (HT20)	802.11n (HT20)	802.11ax (VHT20)	802.11n (VHT20)
Data rate	1Mbps	6Mbps	6.5Mbps	13Mbps		

Test Software	Realtek Test Tool
Power level setup	<13dBm

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

AC Line — Adapter — DC Line — EUT

Radiated Emission

AC Line — Adapter — DC Line — EUT

Conducted Spurious

AC Line — Adapter — DC Line — EUT

3.4 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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Industrial grade WIFI6 router	MESHMERIZE	Bumble	N/A	EUT

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.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY45109572	Sep. 22, 2021	Sep. 21, 2022
2	Spectrum Analyzer (1GHz-40GHz)	Agilent	E4446A	100363	Sep. 22, 2021	Sep. 21, 2022
3	Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Sep. 22, 2021	Sep. 21, 2022
4	Bilog Antenna (30MHz-1400MHz)	Schwarzbeck	VULB9168	00877	Sep. 22, 2021	Sep. 21, 2022
5	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	Sep. 22, 2021	Sep. 21, 2022
6	Horn Antenna (18GHz-40GHz)	A.H. System	SAS-574	588	Sep. 22, 2021	Sep. 21, 2022
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	N/A	Sep. 22, 2021	Sep. 21, 2022
8	Amplifier (1GHz-40GHz)	全聚达	DLE-161	097	Sep. 22, 2021	Sep. 21, 2022
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	014	Sep. 22, 2021	Sep. 21, 2022
10	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Sep. 22, 2021	Sep. 21, 2022
11	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
12	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Sep. 22, 2021	Sep. 21, 2022
13	CMW500 Test	R&S	CMW500	106504	Sep. 22, 2021	Sep. 21, 2022
14	ESG Signal Generator	Agilent	E4421B	GB40051203	Sep. 22, 2021	Sep. 21, 2022
15	Signal Generator	Agilent	N5182A	MY47420215	Sep. 22, 2021	Sep. 21, 2022
16	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
17	Power meter + MWRF Test system	MW	MW100-RPCB	1204003	Sep. 22, 2021	Sep. 21, 2022
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Sep. 22, 2021	Sep. 21, 2022
2	LISN	CYBERTEK	EM5040A	E1850400149	Sep. 22, 2021	Sep. 21, 2022
3	Test Cable	N/A	C01	N/A	Sep. 22, 2021	Sep. 21, 2022
4	Test Cable	N/A	C02	N/A	Sep. 22, 2021	Sep. 21, 2022
5	EMI Test Receiver	R&S	ESRP3	101946	Sep. 22, 2021	Sep. 21, 2022
6	Absorbing Clamp	DZ	ZN23201	N/A	Sep. 22, 2021	Sep. 21, 2022

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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.

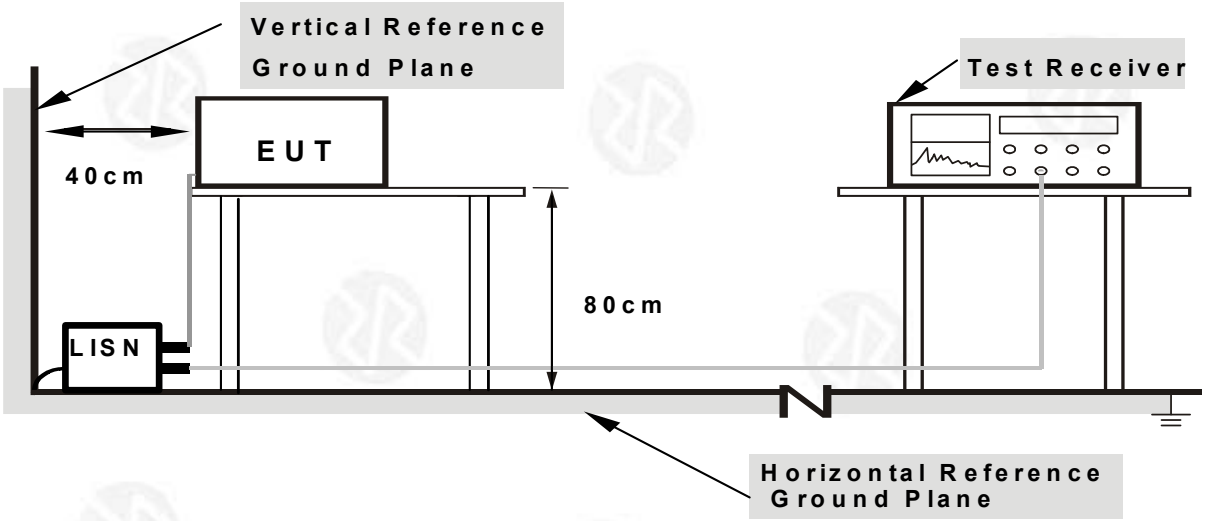
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.1 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. 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 from other units and other metal planes

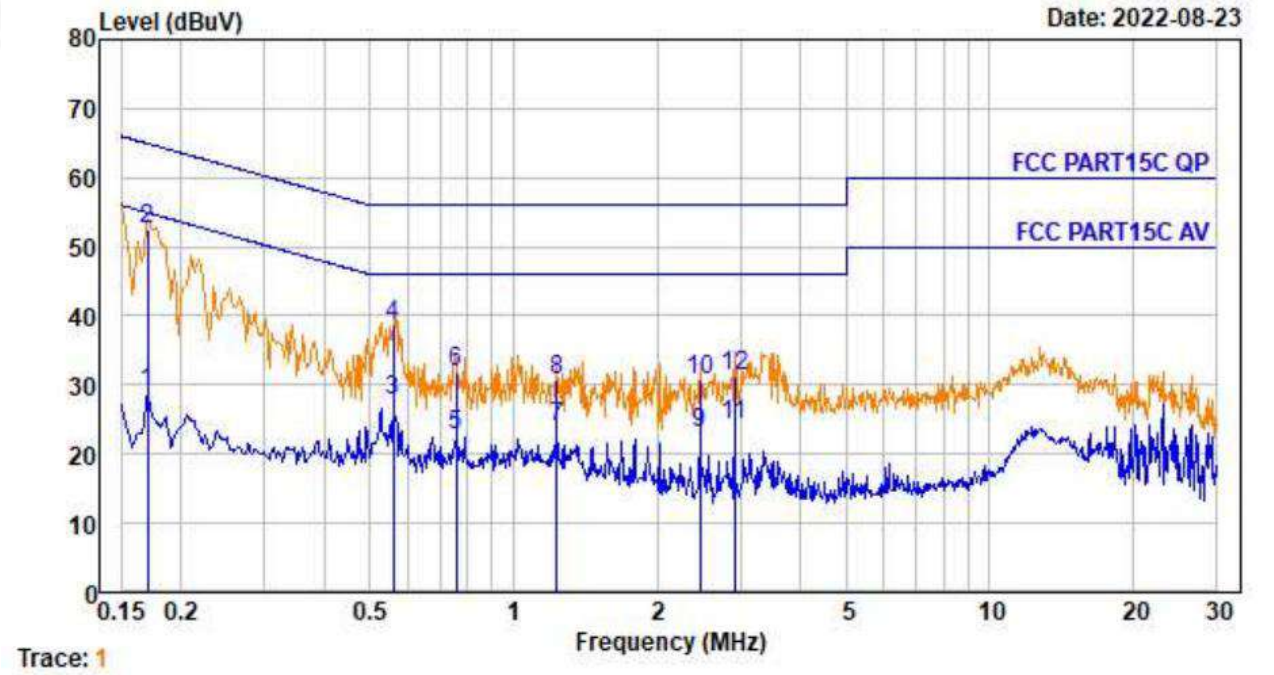
4.1.5 EUT OPERATING CONDITIONS

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.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULT

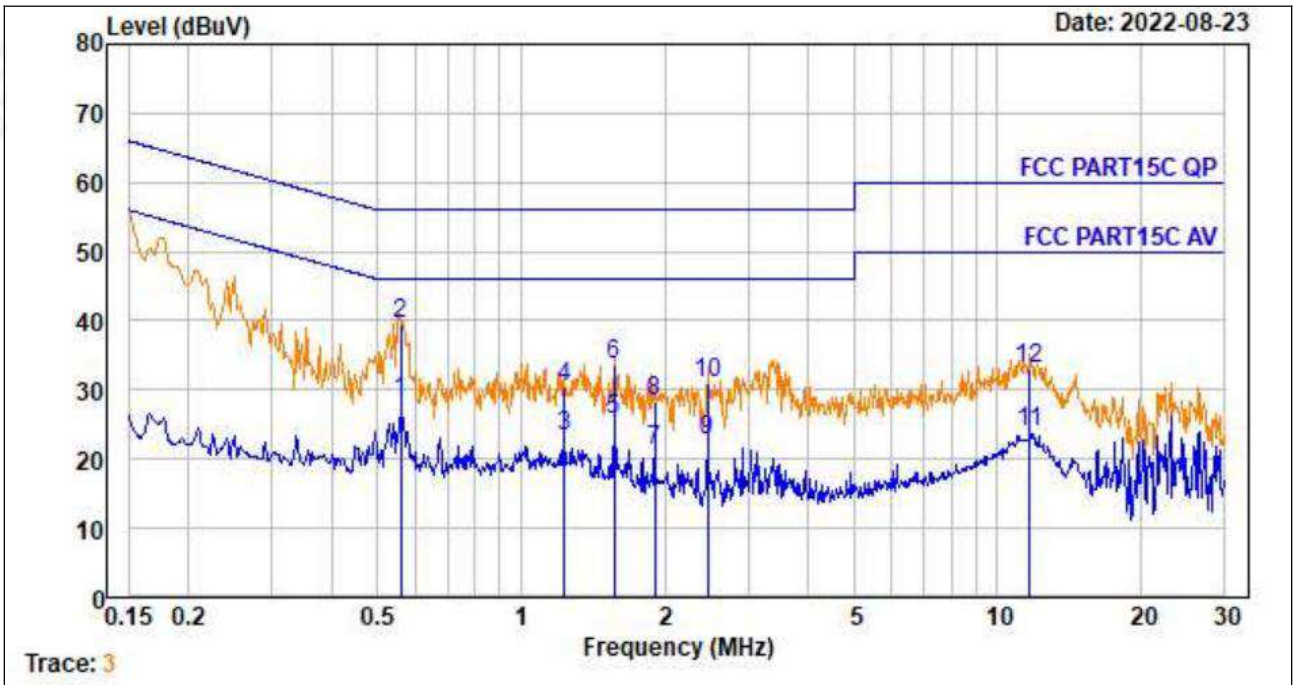
Temperature :	26℃	Relative Humidity:	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz		



No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBμV	Emission Level dBμV	Limit dBμV	Over Limit dB	Remark
1	0.170	0.24	9.54	19.24	29.02	54.94	-25.92	Average
2	0.170	0.24	9.54	42.79	52.57	64.94	-12.37	QP
3	0.558	0.43	9.57	17.66	27.66	46.00	-18.34	Average
4	0.558	0.43	9.57	28.65	38.65	56.00	-17.35	QP
5	0.759	0.44	9.58	12.85	22.87	46.00	-23.13	Average
6	0.759	0.44	9.58	21.95	31.97	56.00	-24.03	QP
7	1.236	0.46	9.58	13.87	23.91	46.00	-22.09	Average
8	1.236	0.46	9.58	20.66	30.70	56.00	-25.30	QP
9	2.461	0.47	9.59	13.09	23.15	46.00	-22.85	Average
10	2.461	0.47	9.59	20.56	30.62	56.00	-25.38	QP
11	2.915	0.47	9.59	14.04	24.10	46.00	-21.90	Average
12	2.915	0.47	9.59	21.15	31.21	56.00	-24.79	QP

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.Mesurement Level = Reading level + Correct Factor

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



No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBμV	Emission Level dBμV	Limit dBμV	Over Limit dB	Remark
1	0.558	0.43	9.58	18.20	28.21	46.00	-17.79	Average
2	0.558	0.43	9.58	29.64	39.65	56.00	-16.35	QP
3	1.236	0.46	9.58	13.14	23.18	46.00	-22.82	Average
4	1.236	0.46	9.58	20.29	30.33	56.00	-25.67	QP
5	1.568	0.47	9.58	15.54	25.59	46.00	-20.41	Average
6	1.568	0.47	9.58	23.69	33.74	56.00	-22.26	QP
7	1.908	0.47	9.58	11.17	21.22	46.00	-24.78	Average
8	1.908	0.47	9.58	18.23	28.28	56.00	-27.72	QP
9	2.461	0.47	9.59	12.75	22.81	46.00	-23.19	Average
10	2.461	0.47	9.59	20.86	30.92	56.00	-25.08	QP
11	11.683	0.56	9.81	13.44	23.81	50.00	-26.19	Average
12	11.683	0.56	9.81	22.64	33.01	60.00	-26.99	QP

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.Mesurement Level = Reading level + Correct Factor

4.2 RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209
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	600Hz	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 (micorvolts/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

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).

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter semi-anechoiccamber. 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 avariable-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 1meter) 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 10dBmargin 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 form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

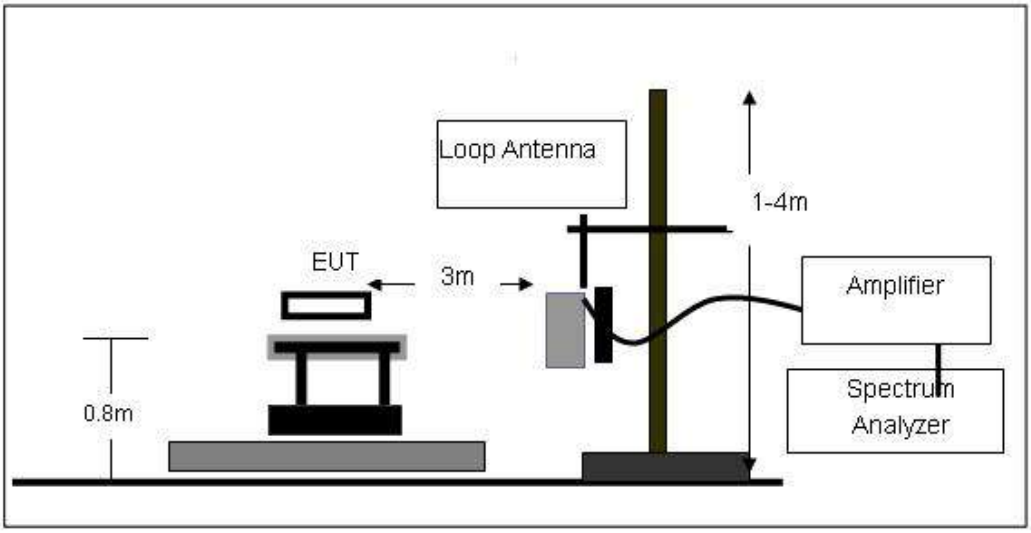
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

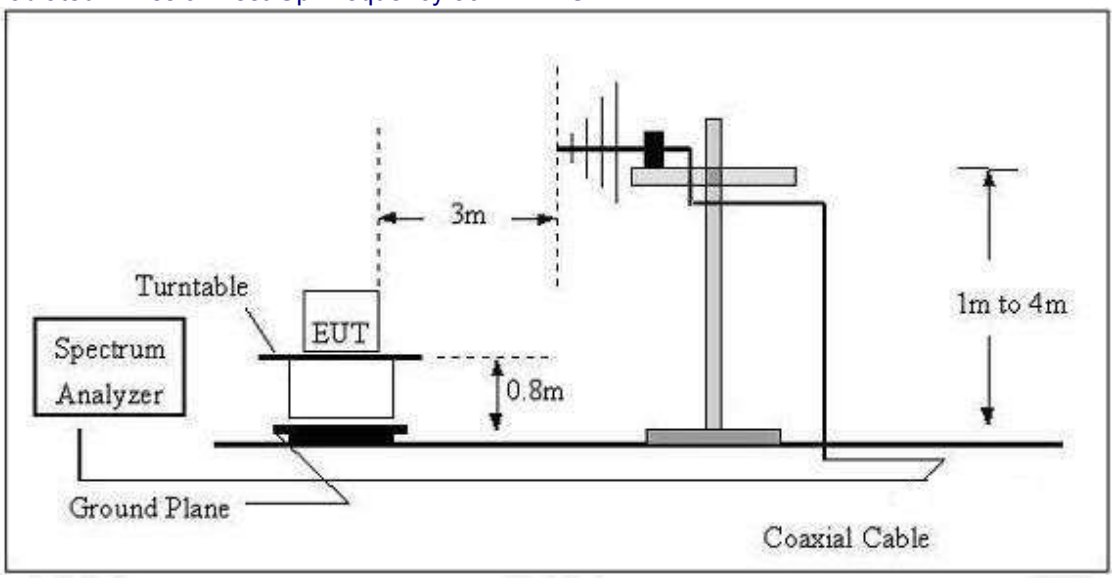
No deviation

4.2.4 TEST SETUP

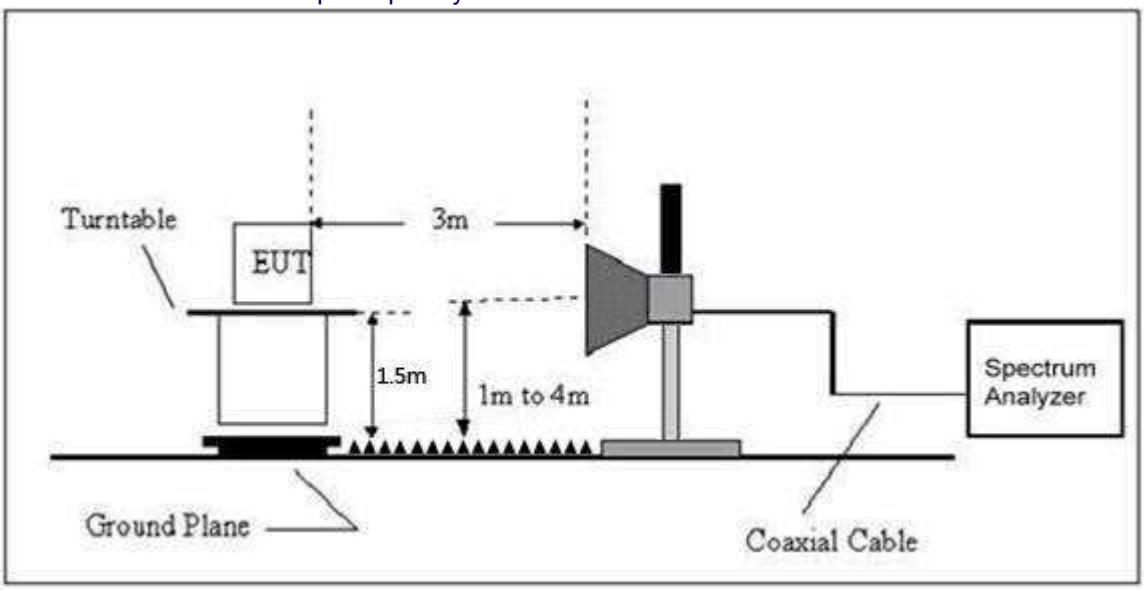
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

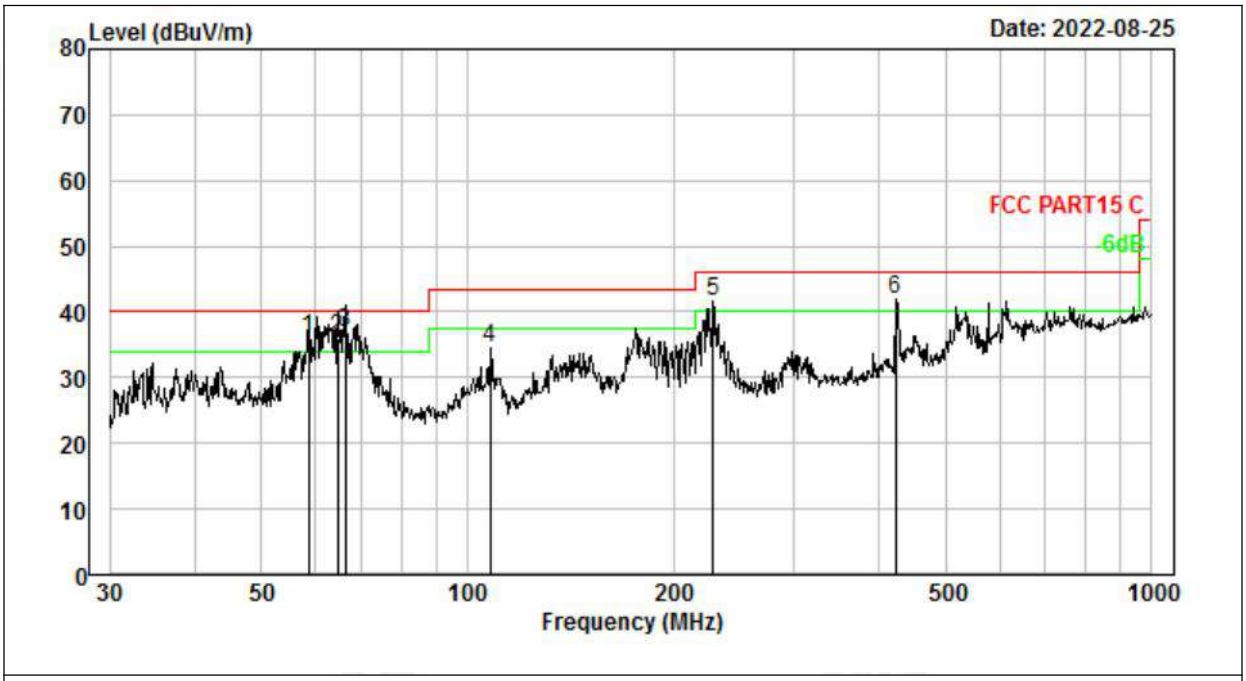
4.2.6 TEST RESULTS

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.

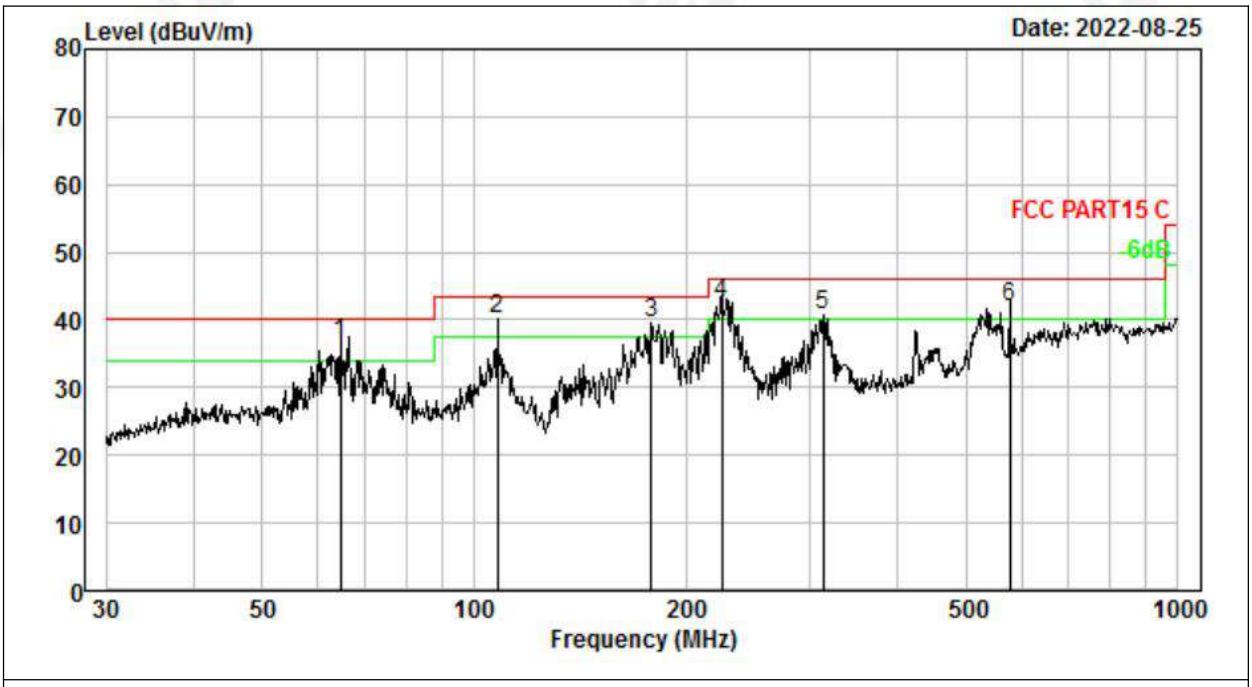
Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBμV	Preamp Gain dB	Emission Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
1	58.613	0.49	11.83	23.83	0.00	36.15	40.00	-3.85	QP
2	64.659	0.53	10.58	25.05	0.00	36.16	40.00	-3.84	QP
3	66.266	0.54	10.22	26.21	0.00	36.97	40.00	-3.03	QP
4	107.888	0.73	11.18	22.67	0.00	34.58	43.50	-8.92	QP
5	228.490	1.13	12.35	28.23	0.00	41.71	46.00	-4.29	QP
6	422.058	1.46	16.14	24.19	0.00	41.79	46.00	-4.21	QP

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz		



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBμV	Preamp Gain dB	Emission Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
1	64.659	0.53	10.58	25.37	0.00	36.48	40.00	-3.52	QP
2	107.888	0.73	11.18	28.25	0.00	40.16	43.50	-3.34	QP
3	178.758	1.00	9.74	28.73	0.00	39.47	43.50	-4.03	QP
4	225.308	1.12	12.25	29.22	0.00	42.59	46.00	-3.41	QP
5	313.276	1.30	14.53	25.02	0.00	40.85	46.00	-5.15	QP
6	576.644	1.68	18.53	21.83	0.00	42.04	46.00	-3.96	QP

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case 802.11b and DC 12Vmode

1GHz~25GHz

ANT1- 802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824.00	53.80	30.55	5.77	24.66	53.68	74.00	-20.32	PK
V	4824.00	43.21	30.55	5.77	24.66	43.09	54.00	-10.91	AV
V	7236.00	52.59	30.33	6.32	24.55	53.13	74.00	-20.87	PK
V	7236.00	43.25	30.33	6.32	24.55	43.79	54.00	-10.21	AV
V	9648.00	51.74	30.85	7.45	24.69	53.03	74.00	-20.97	PK
V	9648.00	41.22	30.85	7.45	24.69	42.51	54.00	-11.49	AV
V	12060.00	52.38	31.02	8.99	25.57	55.92	74.00	-18.08	PK
V	12060.00	41.22	31.02	8.99	25.57	44.76	54.00	-9.24	AV
H	4824.00	53.36	30.55	5.77	24.66	53.24	74.00	-20.76	PK
H	4824.00	43.73	30.55	5.77	24.66	43.61	54.00	-10.39	AV
H	7236.00	51.69	30.33	6.32	24.55	52.23	74.00	-21.77	PK
H	7236.00	41.51	30.33	6.32	24.55	42.05	54.00	-11.95	AV
H	9648.00	52.48	30.85	7.45	24.69	53.77	74.00	-20.23	PK
H	9648.00	42.50	30.85	7.45	24.69	43.79	54.00	-10.21	AV
H	12060.00	50.49	31.02	8.99	25.57	54.03	74.00	-19.97	PK
H	12060.00	40.21	31.02	8.99	25.57	43.75	54.00	-10.25	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874.00	53.82	30.55	5.77	24.66	53.70	74.00	-20.30	PK
V	4874.00	43.17	30.55	5.77	24.66	43.05	54.00	-10.95	AV
V	7311.00	52.57	30.33	6.32	24.55	53.11	74.00	-20.89	PK
V	7311.00	43.50	30.33	6.32	24.55	44.04	54.00	-9.96	AV
V	9748.00	51.59	30.85	7.45	24.69	52.88	74.00	-21.12	PK
V	9748.00	41.01	30.85	7.45	24.69	42.30	54.00	-11.70	AV
V	12185.00	52.85	31.02	8.99	25.57	56.39	74.00	-17.61	PK
V	12185.00	41.43	31.02	8.99	25.57	44.97	54.00	-9.03	AV
H	4874.00	53.49	30.55	5.77	24.66	53.37	74.00	-20.63	PK
H	4874.00	43.42	30.55	5.77	24.66	43.30	54.00	-10.70	AV
H	7311.00	51.24	30.33	6.32	24.55	51.78	74.00	-22.22	PK
H	7311.00	41.51	30.33	6.32	24.55	42.05	54.00	-11.95	AV
H	9748.00	53.03	30.85	7.45	24.69	54.32	74.00	-19.68	PK
H	9748.00	42.45	30.85	7.45	24.69	43.74	54.00	-10.26	AV
H	12185.00	50.45	31.02	8.99	25.57	53.99	74.00	-20.01	PK
H	12185.00	40.58	31.02	8.99	25.57	44.12	54.00	-9.88	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924.00	53.25	30.55	5.77	24.66	53.13	74.00	-20.87	PK
V	4924.00	43.25	30.55	5.77	24.66	43.13	54.00	-10.87	AV
V	7386.00	52.65	30.33	6.32	24.55	53.19	74.00	-20.81	PK
V	7386.00	43.17	30.33	6.32	24.55	43.71	54.00	-10.29	AV
V	9848.00	51.58	30.85	7.45	24.69	52.87	74.00	-21.13	PK
V	9848.00	41.46	30.85	7.45	24.69	42.75	54.00	-11.25	AV
V	12310.00	52.57	31.02	8.99	25.57	56.11	74.00	-17.89	PK
V	12310.00	40.96	31.02	8.99	25.57	44.50	54.00	-9.50	AV
H	4924.00	53.18	30.55	5.77	24.66	53.06	74.00	-20.94	PK
H	4924.00	43.92	30.55	5.77	24.66	43.80	54.00	-10.20	AV
H	7386.00	51.17	30.33	6.32	24.55	51.71	74.00	-22.29	PK
H	7386.00	41.56	30.33	6.32	24.55	42.10	54.00	-11.90	AV
H	9848.00	52.75	30.85	7.45	24.69	54.04	74.00	-19.96	PK
H	9848.00	42.10	30.85	7.45	24.69	43.39	54.00	-10.61	AV
H	12310.00	50.08	31.02	8.99	25.57	53.62	74.00	-20.38	PK
H	12310.00	40.64	31.02	8.99	25.57	44.18	54.00	-9.82	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.
4. We test all the mode and recorded the worst mode in the report.

1GHz~25GHz

ANT2- 802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824.00	53.62	30.55	5.77	24.66	53.50	74.00	-20.50	PK
V	4824.00	43.55	30.55	5.77	24.66	43.43	54.00	-10.57	AV
V	7236.00	52.52	30.33	6.32	24.55	53.06	74.00	-20.94	PK
V	7236.00	43.33	30.33	6.32	24.55	43.87	54.00	-10.13	AV
V	9648.00	51.69	30.85	7.45	24.69	52.98	74.00	-21.02	PK
V	9648.00	41.28	30.85	7.45	24.69	42.57	54.00	-11.43	AV
V	12060.00	52.74	31.02	8.99	25.57	56.28	74.00	-17.72	PK
V	12060.00	41.22	31.02	8.99	25.57	44.76	54.00	-9.24	AV
H	4824.00	53.55	30.55	5.77	24.66	53.43	74.00	-20.57	PK
H	4824.00	43.59	30.55	5.77	24.66	43.47	54.00	-10.53	AV
H	7236.00	51.67	30.33	6.32	24.55	52.21	74.00	-21.79	PK
H	7236.00	41.61	30.33	6.32	24.55	42.15	54.00	-11.85	AV
H	9648.00	52.84	30.85	7.45	24.69	54.13	74.00	-19.87	PK
H	9648.00	42.51	30.85	7.45	24.69	43.80	54.00	-10.20	AV
H	12060.00	50.49	31.02	8.99	25.57	54.03	74.00	-19.97	PK
H	12060.00	40.49	31.02	8.99	25.57	44.03	54.00	-9.97	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874.00	53.24	30.55	5.77	24.66	53.12	74.00	-20.88	PK
V	4874.00	43.37	30.55	5.77	24.66	43.25	54.00	-10.75	AV
V	7311.00	52.79	30.33	6.32	24.55	53.33	74.00	-20.67	PK
V	7311.00	43.02	30.33	6.32	24.55	43.56	54.00	-10.44	AV
V	9748.00	51.30	30.85	7.45	24.69	52.59	74.00	-21.41	PK
V	9748.00	41.39	30.85	7.45	24.69	42.68	54.00	-11.32	AV
V	12185.00	52.52	31.02	8.99	25.57	56.06	74.00	-17.94	PK
V	12185.00	41.03	31.02	8.99	25.57	44.57	54.00	-9.43	AV
H	4874.00	53.16	30.55	5.77	24.66	53.04	74.00	-20.96	PK
H	4874.00	43.72	30.55	5.77	24.66	43.60	54.00	-10.40	AV
H	7311.00	51.64	30.33	6.32	24.55	52.18	74.00	-21.82	PK
H	7311.00	41.25	30.33	6.32	24.55	41.79	54.00	-12.21	AV
H	9748.00	52.62	30.85	7.45	24.69	53.91	74.00	-20.09	PK
H	9748.00	42.46	30.85	7.45	24.69	43.75	54.00	-10.25	AV
H	12185.00	50.43	31.02	8.99	25.57	53.97	74.00	-20.03	PK
H	12185.00	40.28	31.02	8.99	25.57	43.82	54.00	-10.18	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924.00	53.27	30.55	5.77	24.66	53.15	74.00	-20.85	PK
V	4924.00	43.04	30.55	5.77	24.66	42.92	54.00	-11.08	AV
V	7386.00	52.55	30.33	6.32	24.55	53.09	74.00	-20.91	PK
V	7386.00	43.13	30.33	6.32	24.55	43.67	54.00	-10.33	AV
V	9848.00	51.60	30.85	7.45	24.69	52.89	74.00	-21.11	PK
V	9848.00	41.08	30.85	7.45	24.69	42.37	54.00	-11.63	AV
V	12310.00	52.70	31.02	8.99	25.57	56.24	74.00	-17.76	PK
V	12310.00	41.00	31.02	8.99	25.57	44.54	54.00	-9.46	AV
H	4924.00	53.27	30.55	5.77	24.66	53.15	74.00	-20.85	PK
H	4924.00	43.56	30.55	5.77	24.66	43.44	54.00	-10.56	AV
H	7386.00	51.44	30.33	6.32	24.55	51.98	74.00	-22.02	PK
H	7386.00	41.38	30.33	6.32	24.55	41.92	54.00	-12.08	AV
H	9848.00	52.70	30.85	7.45	24.69	53.99	74.00	-20.01	PK
H	9848.00	42.02	30.85	7.45	24.69	43.31	54.00	-10.69	AV
H	12310.00	50.42	31.02	8.99	25.57	53.96	74.00	-20.04	PK
H	12310.00	40.79	31.02	8.99	25.57	44.33	54.00	-9.67	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.
4. We test all the mode and recorded the worst mode in the report.

5.RADIATED BAND EMISSIONMEASUREMENT

5.1 TEST REQUIREMENT:

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
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)	Class B (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).

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. 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 and the rota 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 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the Highest channel

Note:

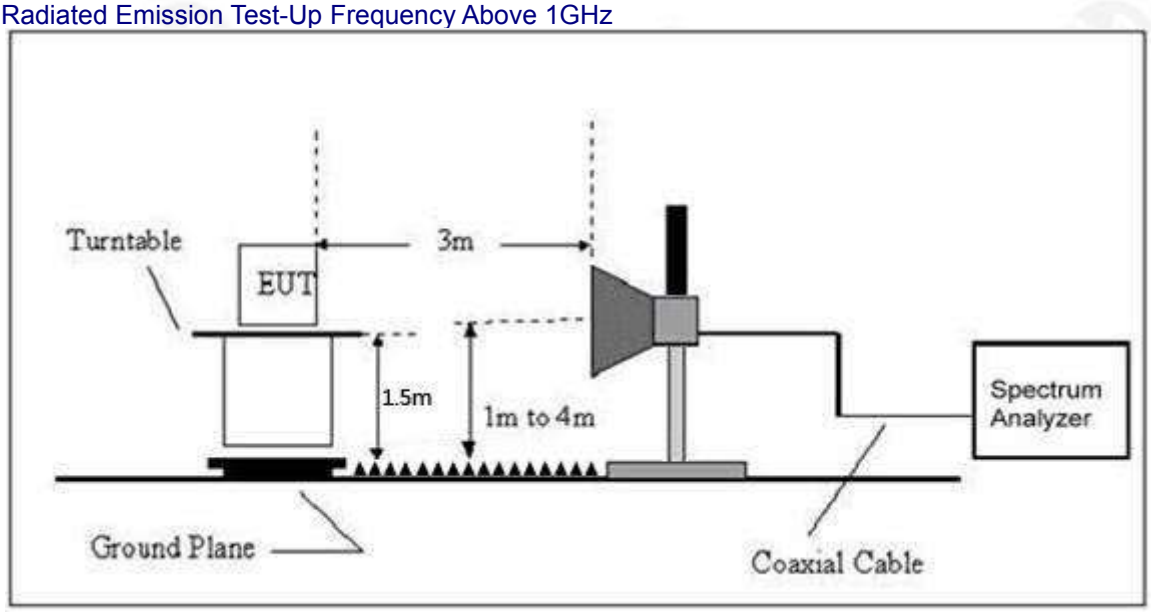
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

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 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULT

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Detector Type	Result
ANT1-802.11b	Low Channel 2412MHz									
	H	2390.00	54.09	30.22	4.85	23.98	52.70	74.00	PK	PASS
	H	2390.00	45.78	30.22	4.85	23.98	44.39	54.00	AV	PASS
	H	2400.00	55.98	30.22	4.85	23.98	54.59	74.00	PK	PASS
	H	2400.00	45.86	30.22	4.85	23.98	44.47	54.00	AV	PASS
	V	2390.00	53.53	30.22	4.85	23.98	52.14	74.00	PK	PASS
	V	2390.00	45.84	30.22	4.85	23.98	44.45	54.00	AV	PASS
	V	2400.00	55.34	30.22	4.85	23.98	53.95	74.00	PK	PASS
	V	2400.00	45.73	30.22	4.85	23.98	44.34	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	54.00	30.22	4.85	23.98	52.61	74.00	PK	PASS
	H	2483.50	44.49	30.22	4.85	23.98	43.10	54.00	AV	PASS
	H	2500.00	55.25	30.22	4.85	23.98	53.86	74.00	PK	PASS
	H	2500.00	45.62	30.22	4.85	23.98	44.23	54.00	AV	PASS
	V	2483.50	54.31	30.22	4.85	23.98	52.92	74.00	PK	PASS
	V	2483.50	46.27	30.22	4.85	23.98	44.88	54.00	AV	PASS
	V	2500.00	55.05	30.22	4.85	23.98	53.66	74.00	PK	PASS
	V	2500.00	45.29	30.22	4.85	23.98	43.90	54.00	AV	PASS
ANT1-802.11g	Low Channel 2412MHz									
	H	2390.00	53.92	30.22	4.85	23.98	52.53	74.00	PK	PASS
	H	2390.00	45.70	30.22	4.85	23.98	44.31	54.00	AV	PASS
	H	2400.00	55.68	30.22	4.85	23.98	54.29	74.00	PK	PASS
	H	2400.00	46.10	30.22	4.85	23.98	44.71	54.00	AV	PASS
	V	2390.00	54.11	30.22	4.85	23.98	52.72	74.00	PK	PASS
	V	2390.00	45.53	30.22	4.85	23.98	44.14	54.00	AV	PASS
	V	2400.00	55.79	30.22	4.85	23.98	54.40	74.00	PK	PASS
	V	2400.00	46.11	30.22	4.85	23.98	44.72	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	53.42	30.22	4.85	23.98	52.03	74.00	PK	PASS
	H	2483.50	45.03	30.22	4.85	23.98	43.64	54.00	AV	PASS
	H	2500.00	54.98	30.22	4.85	23.98	53.59	74.00	PK	PASS
	H	2500.00	45.76	30.22	4.85	23.98	44.37	54.00	AV	PASS
	V	2483.50	54.52	30.22	4.85	23.98	53.13	74.00	PK	PASS
	V	2483.50	46.10	30.22	4.85	23.98	44.71	54.00	AV	PASS
	V	2500.00	54.71	30.22	4.85	23.98	53.32	74.00	PK	PASS
	V	2500.00	45.79	30.22	4.85	23.98	44.40	54.00	AV	PASS
ANT1-802.11n20	Low Channel 2412MHz									
	H	2390.00	54.18	30.22	4.85	23.98	52.79	74.00	PK	PASS
	H	2390.00	46.18	30.22	4.85	23.98	44.79	54.00	AV	PASS
	H	2400.00	55.69	30.22	4.85	23.98	54.30	74.00	PK	PASS
	H	2400.00	46.19	30.22	4.85	23.98	44.80	54.00	AV	PASS
	V	2390.00	53.74	30.22	4.85	23.98	52.35	74.00	PK	PASS
	V	2390.00	45.61	30.22	4.85	23.98	44.22	54.00	AV	PASS
	V	2400.00	55.68	30.22	4.85	23.98	54.29	74.00	PK	PASS
	V	2400.00	45.57	30.22	4.85	23.98	44.18	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	53.73	30.22	4.85	23.98	52.34	74.00	PK	PASS
	H	2483.50	44.84	30.22	4.85	23.98	43.45	54.00	AV	PASS
	H	2500.00	55.15	30.22	4.85	23.98	53.76	74.00	PK	PASS
	H	2500.00	45.88	30.22	4.85	23.98	44.49	54.00	AV	PASS
	V	2483.50	54.25	30.22	4.85	23.98	52.86	74.00	PK	PASS
	V	2483.50	45.94	30.22	4.85	23.98	44.55	54.00	AV	PASS
	V	2500.00	55.03	30.22	4.85	23.98	53.64	74.00	PK	PASS

	V	2500.00	45.29	30.22	4.85	23.98	43.90	54.00	AV	PASS
ANT1-802.11n40	Low Channel 2422MHz									
	H	2390.00	53.72	30.22	4.85	23.98	52.33	74.00	PK	PASS
	H	2390.00	46.14	30.22	4.85	23.98	44.75	54.00	AV	PASS
	H	2400.00	55.55	30.22	4.85	23.98	54.16	74.00	PK	PASS
	H	2400.00	45.60	30.22	4.85	23.98	44.21	54.00	AV	PASS
	V	2390.00	53.78	30.22	4.85	23.98	52.39	74.00	PK	PASS
	V	2390.00	45.77	30.22	4.85	23.98	44.38	54.00	AV	PASS
	V	2400.00	55.84	30.22	4.85	23.98	54.45	74.00	PK	PASS
	V	2400.00	46.01	30.22	4.85	23.98	44.62	54.00	AV	PASS
	High Channel 2452MHz									
	H	2483.50	53.79	30.22	4.85	23.98	52.40	74.00	PK	PASS
	H	2483.50	44.84	30.22	4.85	23.98	43.45	54.00	AV	PASS
	H	2500.00	55.10	30.22	4.85	23.98	53.71	74.00	PK	PASS
	H	2500.00	45.41	30.22	4.85	23.98	44.02	54.00	AV	PASS
	V	2483.50	54.40	30.22	4.85	23.98	53.01	74.00	PK	PASS
	V	2483.50	46.10	30.22	4.85	23.98	44.71	54.00	AV	PASS
	V	2500.00	54.49	30.22	4.85	23.98	53.10	74.00	PK	PASS
	V	2500.00	45.59	30.22	4.85	23.98	44.20	52.36	AV	PASS
ANT1-802.11 ax 20	Low Channel 2412MHz									
	H	2390.00	52.97	30.22	4.85	23.98	51.58	74.00	PK	PASS
	H	2390.00	44.43	30.22	4.85	23.98	43.04	54.00	AV	PASS
	H	2400.00	54.89	30.22	4.85	23.98	53.50	74.00	PK	PASS
	H	2400.00	44.58	30.22	4.85	23.98	43.19	54.00	AV	PASS
	V	2390.00	53.16	30.22	4.85	23.98	51.77	74.00	PK	PASS
	V	2390.00	44.70	30.22	4.85	23.98	43.31	54.00	AV	PASS
	V	2400.00	54.29	30.22	4.85	23.98	52.90	74.00	PK	PASS
	V	2400.00	45.03	30.22	4.85	23.98	43.64	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	52.92	30.22	4.85	23.98	51.53	74.00	PK	PASS
	H	2483.50	43.57	30.22	4.85	23.98	42.18	54.00	AV	PASS
	H	2500.00	53.95	30.22	4.85	23.98	52.56	74.00	PK	PASS
	H	2500.00	44.50	30.22	4.85	23.98	43.11	54.00	AV	PASS
	V	2483.50	53.81	30.22	4.85	23.98	52.42	74.00	PK	PASS
	V	2483.50	44.86	30.22	4.85	23.98	43.47	54.00	AV	PASS
	V	2500.00	53.96	30.22	4.85	23.98	52.57	74.00	PK	PASS
	V	2500.00	44.66	30.22	4.85	23.98	43.27	54.00	AV	PASS
ANT1-802.11 ax40	Low Channel 2422MHz									
	H	2390.00	52.81	30.22	4.85	23.98	51.42	74.00	PK	PASS
	H	2390.00	45.01	30.22	4.85	23.98	43.62	54.00	AV	PASS
	H	2400.00	54.61	30.22	4.85	23.98	53.22	74.00	PK	PASS
	H	2400.00	44.54	30.22	4.85	23.98	43.15	54.00	AV	PASS
	V	2390.00	52.89	30.22	4.85	23.98	51.50	74.00	PK	PASS
	V	2390.00	44.48	30.22	4.85	23.98	43.09	54.00	AV	PASS
	V	2400.00	54.95	30.22	4.85	23.98	53.56	74.00	PK	PASS
	V	2400.00	45.09	30.22	4.85	23.98	43.70	54.00	AV	PASS
	High Channel 2452MHz									
	H	2483.50	52.92	30.22	4.85	23.98	51.53	74.00	PK	PASS
	H	2483.50	43.88	30.22	4.85	23.98	42.49	54.00	AV	PASS
	H	2500.00	54.24	30.22	4.85	23.98	52.85	74.00	PK	PASS
	H	2500.00	44.77	30.22	4.85	23.98	43.38	54.00	AV	PASS
	V	2483.50	53.76	30.22	4.85	23.98	52.37	74.00	PK	PASS
	V	2483.50	45.42	30.22	4.85	23.98	44.03	54.00	AV	PASS
	V	2500.00	53.78	30.22	4.85	23.98	52.39	74.00	PK	PASS
	V	2500.00	44.36	30.22	4.85	23.98	42.97	54.00	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Detector Type	Result
ANT2-802.11b	Low Channel 2412MHz									
	H	2390.00	53.98	30.22	4.85	23.98	52.59	74.00	PK	PASS
	H	2390.00	45.92	30.22	4.85	23.98	44.53	54.00	AV	PASS
	H	2400.00	55.56	30.22	4.85	23.98	54.17	74.00	PK	PASS
	H	2400.00	45.62	30.22	4.85	23.98	44.23	54.00	AV	PASS
	V	2390.00	53.71	30.22	4.85	23.98	52.32	74.00	PK	PASS
	V	2390.00	45.68	30.22	4.85	23.98	44.29	54.00	AV	PASS
	V	2400.00	55.48	30.22	4.85	23.98	54.09	74.00	PK	PASS
	V	2400.00	45.71	30.22	4.85	23.98	44.32	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	54.04	30.22	4.85	23.98	52.65	74.00	PK	PASS
	H	2483.50	44.72	30.22	4.85	23.98	43.33	54.00	AV	PASS
	H	2500.00	54.87	30.22	4.85	23.98	53.48	74.00	PK	PASS
	H	2500.00	45.53	30.22	4.85	23.98	44.14	54.00	AV	PASS
	V	2483.50	54.25	30.22	4.85	23.98	52.86	74.00	PK	PASS
	V	2483.50	45.87	30.22	4.85	23.98	44.48	54.00	AV	PASS
	V	2500.00	54.49	30.22	4.85	23.98	53.10	74.00	PK	PASS
	V	2500.00	45.50	30.22	4.85	23.98	44.11	54.00	AV	PASS
ANT2-802.11g	Low Channel 2412MHz									
	H	2390.00	53.98	30.22	4.85	23.98	52.59	74.00	PK	PASS
	H	2390.00	46.09	30.22	4.85	23.98	44.70	54.00	AV	PASS
	H	2400.00	55.74	30.22	4.85	23.98	54.35	74.00	PK	PASS
	H	2400.00	45.93	30.22	4.85	23.98	44.54	54.00	AV	PASS
	V	2390.00	54.12	30.22	4.85	23.98	52.73	74.00	PK	PASS
	V	2390.00	45.59	30.22	4.85	23.98	44.20	54.00	AV	PASS
	V	2400.00	55.34	30.22	4.85	23.98	53.95	74.00	PK	PASS
	V	2400.00	46.19	30.22	4.85	23.98	44.80	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	53.80	30.22	4.85	23.98	52.41	74.00	PK	PASS
	H	2483.50	44.60	30.22	4.85	23.98	43.21	54.00	AV	PASS
	H	2500.00	55.01	30.22	4.85	23.98	53.62	74.00	PK	PASS
	H	2500.00	45.97	30.22	4.85	23.98	44.58	54.00	AV	PASS
	V	2483.50	54.16	30.22	4.85	23.98	52.77	74.00	PK	PASS
	V	2483.50	45.88	30.22	4.85	23.98	44.49	54.00	AV	PASS
	V	2500.00	54.59	30.22	4.85	23.98	53.20	74.00	PK	PASS
	V	2500.00	45.73	30.22	4.85	23.98	44.34	54.00	AV	PASS
ANT2-802.11n20	Low Channel 2412MHz									
	H	2390.00	54.01	30.22	4.85	23.98	52.62	74.00	PK	PASS
	H	2390.00	45.97	30.22	4.85	23.98	44.58	54.00	AV	PASS
	H	2400.00	55.65	30.22	4.85	23.98	54.26	74.00	PK	PASS
	H	2400.00	45.71	30.22	4.85	23.98	44.32	54.00	AV	PASS
	V	2390.00	53.76	30.22	4.85	23.98	52.37	74.00	PK	PASS
	V	2390.00	45.78	30.22	4.85	23.98	44.39	54.00	AV	PASS
	V	2400.00	55.44	30.22	4.85	23.98	54.05	74.00	PK	PASS
	V	2400.00	45.92	30.22	4.85	23.98	44.53	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	53.38	30.22	4.85	23.98	51.99	74.00	PK	PASS
	H	2483.50	44.67	30.22	4.85	23.98	43.28	54.00	AV	PASS
	H	2500.00	55.18	30.22	4.85	23.98	53.79	74.00	PK	PASS
	H	2500.00	45.95	30.22	4.85	23.98	44.56	54.00	AV	PASS
	V	2483.50	54.13	30.22	4.85	23.98	52.74	74.00	PK	PASS
	V	2483.50	45.87	30.22	4.85	23.98	44.48	54.00	AV	PASS
	V	2500.00	54.82	30.22	4.85	23.98	53.43	74.00	PK	PASS

	V	2500.00	45.57	30.22	4.85	23.98	44.18	54.00	AV	PASS
ANT2-802.11n40	Low Channel 2422MHz									
	H	2390.00	53.93	30.22	4.85	23.98	52.54	74.00	PK	PASS
	H	2390.00	45.85	30.22	4.85	23.98	44.46	54.00	AV	PASS
	H	2400.00	55.86	30.22	4.85	23.98	54.47	74.00	PK	PASS
	H	2400.00	45.44	30.22	4.85	23.98	44.05	54.00	AV	PASS
	V	2390.00	53.56	30.22	4.85	23.98	52.17	74.00	PK	PASS
	V	2390.00	45.90	30.22	4.85	23.98	44.51	54.00	AV	PASS
	V	2400.00	55.47	30.22	4.85	23.98	54.08	74.00	PK	PASS
	V	2400.00	46.02	30.22	4.85	23.98	44.63	54.00	AV	PASS
	High Channel 2452MHz									
	H	2483.50	53.70	30.22	4.85	23.98	52.31	74.00	PK	PASS
	H	2483.50	44.31	30.22	4.85	23.98	42.92	54.00	AV	PASS
	H	2500.00	55.41	30.22	4.85	23.98	54.02	74.00	PK	PASS
	H	2500.00	45.19	30.22	4.85	23.98	43.80	54.00	AV	PASS
	V	2483.50	54.19	30.22	4.85	23.98	52.80	74.00	PK	PASS
	V	2483.50	45.85	30.22	4.85	23.98	44.46	54.00	AV	PASS
	V	2500.00	54.41	30.22	4.85	23.98	53.02	74.00	PK	PASS
	V	2500.00	45.52	30.22	4.85	23.98	44.13	54.00	AV	PASS
ANT2-802.11 ax 20	Low Channel 2412MHz									
	H	2390.00	52.96	30.22	4.85	23.98	51.57	74.00	PK	PASS
	H	2390.00	44.88	30.22	4.85	23.98	43.49	54.00	AV	PASS
	H	2400.00	55.04	30.22	4.85	23.98	53.65	74.00	PK	PASS
	H	2400.00	45.10	30.22	4.85	23.98	43.71	54.00	AV	PASS
	V	2390.00	52.95	30.22	4.85	23.98	51.56	74.00	PK	PASS
	V	2390.00	44.35	30.22	4.85	23.98	42.96	54.00	AV	PASS
	V	2400.00	54.64	30.22	4.85	23.98	53.25	74.00	PK	PASS
	V	2400.00	45.03	30.22	4.85	23.98	43.64	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	52.59	30.22	4.85	23.98	51.20	74.00	PK	PASS
	H	2483.50	43.63	30.22	4.85	23.98	42.24	54.00	AV	PASS
	H	2500.00	54.07	30.22	4.85	23.98	52.68	74.00	PK	PASS
	H	2500.00	44.48	30.22	4.85	23.98	43.09	54.00	AV	PASS
	V	2483.50	53.74	30.22	4.85	23.98	52.35	74.00	PK	PASS
	V	2483.50	45.00	30.22	4.85	23.98	43.61	54.00	AV	PASS
	V	2500.00	54.00	30.22	4.85	23.98	52.61	74.00	PK	PASS
	V	2500.00	44.75	30.22	4.85	23.98	43.36	54.00	AV	PASS
ANT2-802.11 ax40	Low Channel 2422MHz									
	H	2390.00	53.31	30.22	4.85	23.98	51.92	74.00	PK	PASS
	H	2390.00	45.00	30.22	4.85	23.98	43.61	54.00	AV	PASS
	H	2400.00	54.68	30.22	4.85	23.98	53.29	74.00	PK	PASS
	H	2400.00	44.65	30.22	4.85	23.98	43.26	54.00	AV	PASS
	V	2390.00	52.72	30.22	4.85	23.98	51.33	74.00	PK	PASS
	V	2390.00	44.81	30.22	4.85	23.98	43.42	54.00	AV	PASS
	V	2400.00	54.47	30.22	4.85	23.98	53.08	74.00	PK	PASS
	V	2400.00	44.77	30.22	4.85	23.98	43.38	54.00	AV	PASS
	High Channel 2452MHz									
	H	2483.50	52.63	30.22	4.85	23.98	51.24	74.00	PK	PASS
	H	2483.50	43.57	30.22	4.85	23.98	42.18	54.00	AV	PASS
	H	2500.00	54.34	30.22	4.85	23.98	52.95	74.00	PK	PASS
	H	2500.00	44.54	30.22	4.85	23.98	43.15	54.00	AV	PASS
	V	2483.50	53.52	30.22	4.85	23.98	52.13	74.00	PK	PASS
	V	2483.50	45.32	30.22	4.85	23.98	43.93	54.00	AV	PASS
	V	2500.00	53.61	30.22	4.85	23.98	52.22	74.00	PK	PASS
	V	2500.00	44.18	30.22	4.85	23.98	42.79	54.00	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

6.POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 APPLIED PROCEDURES / LIMIT

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

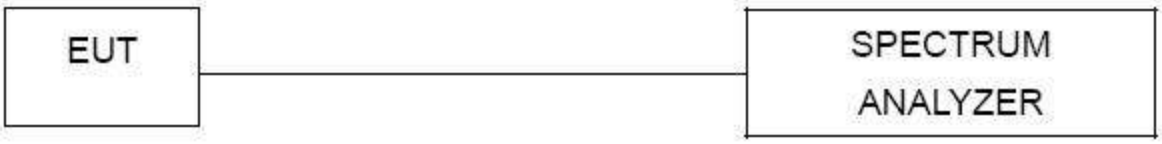
6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX b Mode		

Frequency	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)	Result
	ANT1	ANT2		
2412 MHz	-9.695	-8.316	8	PASS
2437 MHz	-10.693	-8.424	8	PASS
2462 MHz	-9.353	-8.002	8	PASS

ANT1-TX CH01

ANT1-TX CH06

ANT1-TX CH11

ANT2-TX CH01

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.412000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold:>10/10
02:33:14 PM Aug 30, 2022
Ref Offset 4.87 dB
10 dB/div
Ref 29.87 dBm
Log
Mkr1 2.411 328 GHz
-8.316 dBm
Center 2.412000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 19.21 MHz
Sweep 2.026 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.412000000 GHz
Start Freq
2.402394349 GHz
Stop Freq
2.421605651 GHz
CF Step
1.921130 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

ANT2-TX CH06

ANT2-TX CH11

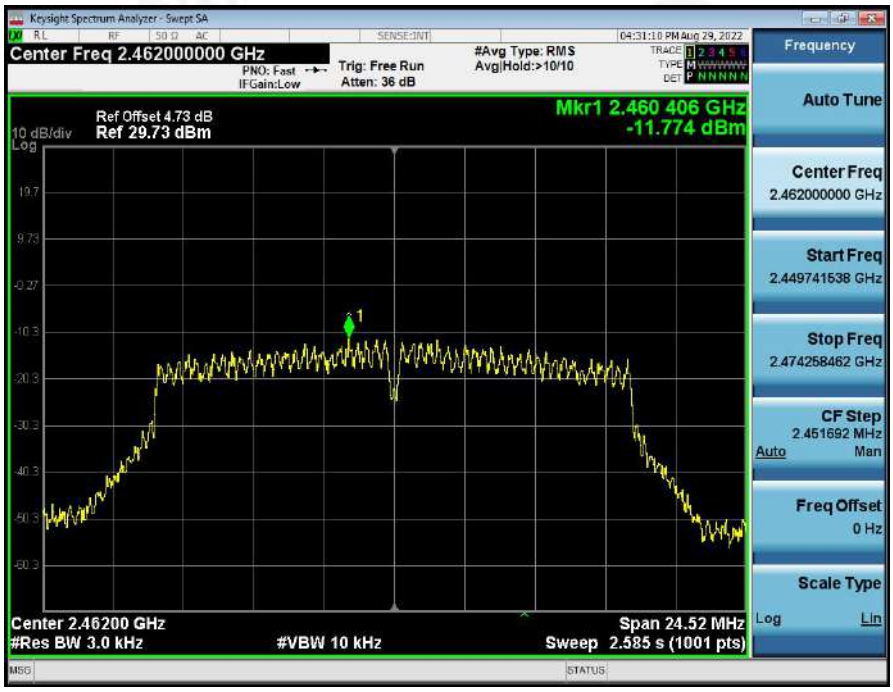
Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage：	DC 12V
Test Mode ：	TX g Mode		

Frequency	Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)	Result
	ANT1	ANT2		
2412 MHz	-13.258	-12.207	8	PASS
2437 MHz	-14.516	-14.947	8	PASS
2462 MHz	-11.774	-13.309	8	PASS

ANT1-TX CH01

ANT1-TX CH06

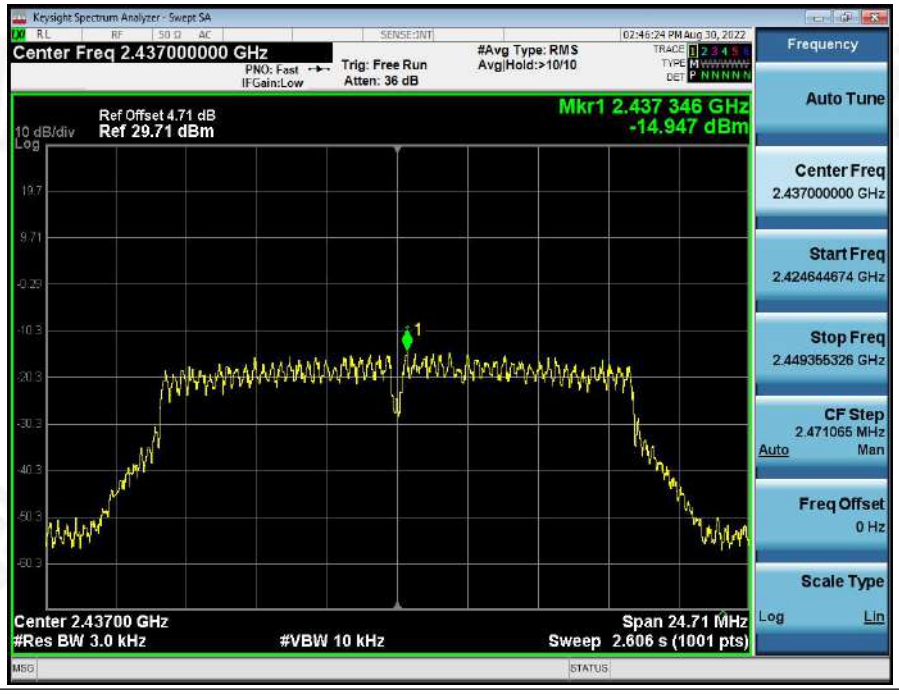
ANT1-TX CH11



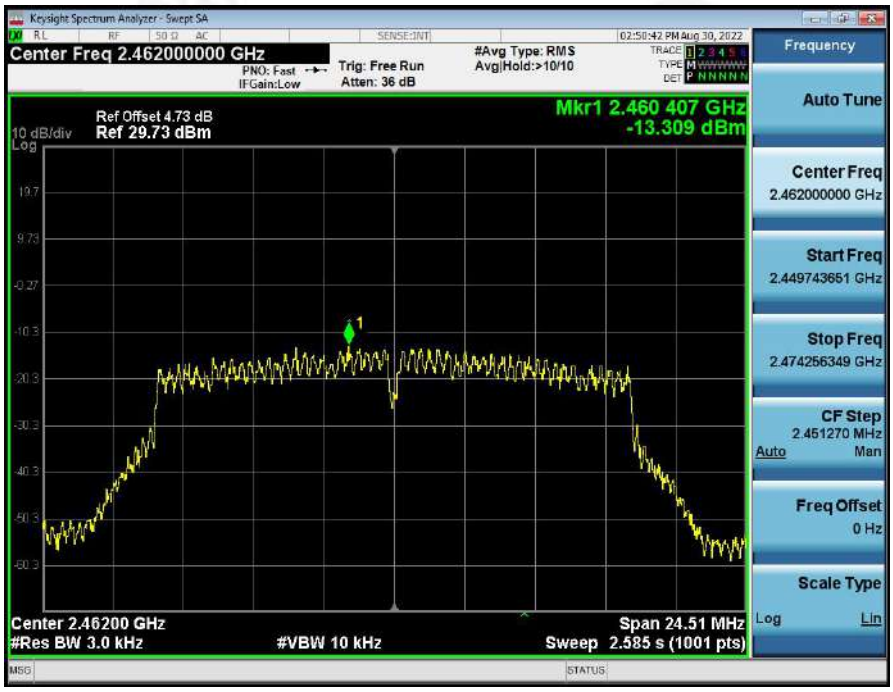
ANT2-TX CH01

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.412000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold:>10/10
02:43:26 PM Aug 30, 2022
Frequency
Auto Tune
Ref Offset 4.87 dB
10 dB/div
Ref 29.87 dBm
Log
Mkr1 2.414 547 GHz
-12.207 dBm
Center Freq
2.412000000 GHz
Start Freq
2.399752779 GHz
Stop Freq
2.424247221 GHz
CF Step
2.449444 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
Center 2.41200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 24.49 MHz
Sweep 2.583 s (1001 pts)
MSG
STATUS

ANT2-TX CH06



ANT2-TX CH11

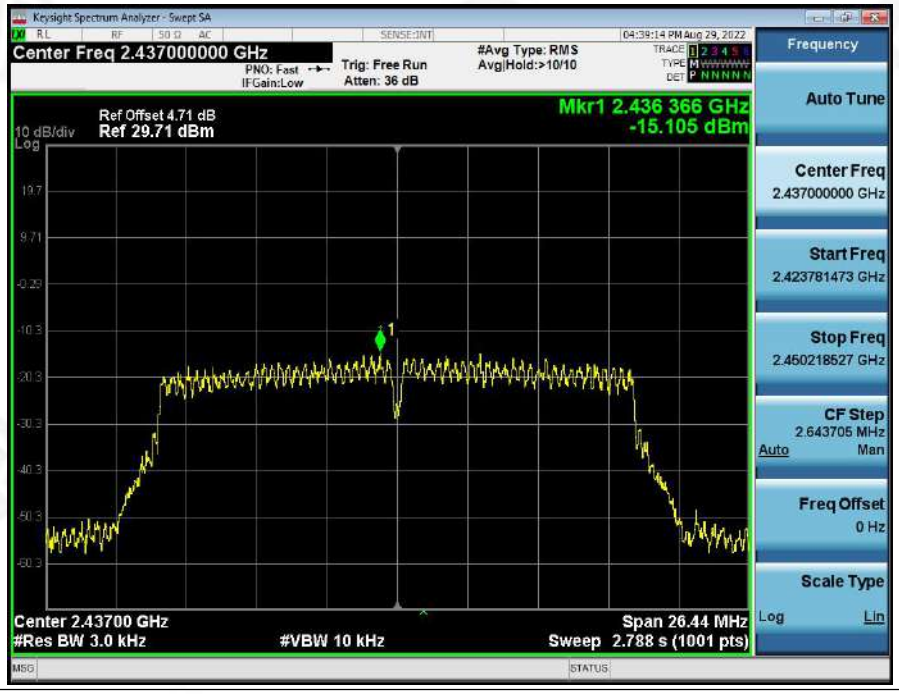


Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage：	DC 12V
Test Mode ：	TX n Mode(20M)		

Frequency	Power Spectral Density (dBm/3kHz)		Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	ANT1	ANT2			
2412 MHz	-12.475	-11.799	-9.11	8	PASS
2437 MHz	-15.105	-14.679	-11.88	8	PASS
2462 MHz	-11.312	-13.171	-9.13	8	PASS

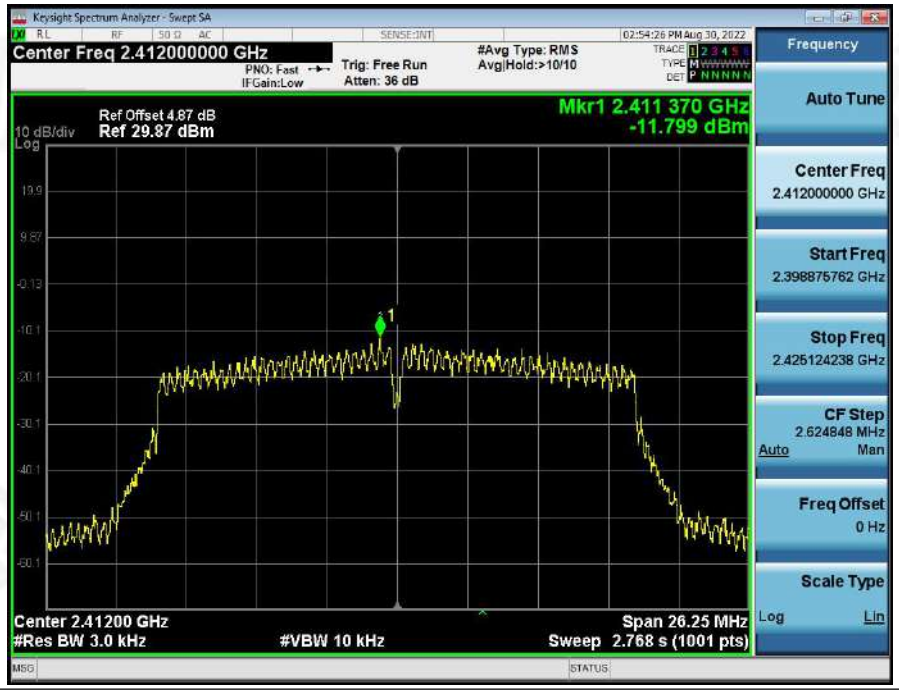
ANT1-TX CH01

ANT1-TX CH06

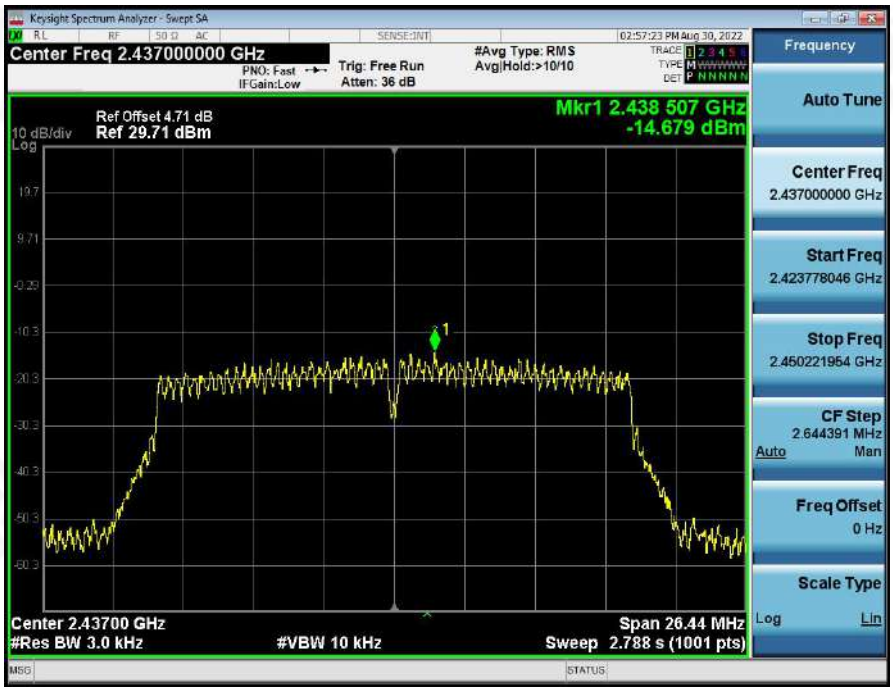


ANT1-TX CH11

ANT2-TX CH01


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.412000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold:>10/10
02:54:26 PM Aug 30, 2022
Frequency
Auto Tune
Ref Offset 4.87 dB
10 dB/div
Ref 29.87 dBm
Log
Mkr1 2.411 370 GHz
-11.799 dBm
Center Freq
2.412000000 GHz
Start Freq
2.398875762 GHz
Stop Freq
2.425124238 GHz
CF Step
2.624848 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
Center 2.41200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 26.25 MHz
Sweep 2.768 s (1001 pts)
MSG
STATUS

ANT2-TX CH06

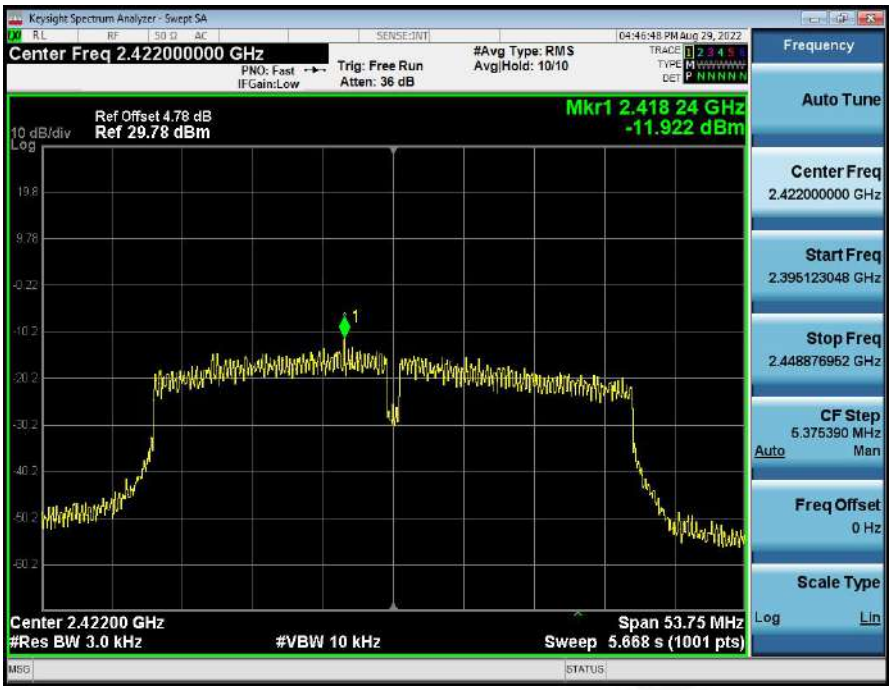


ANT2-TX CH11

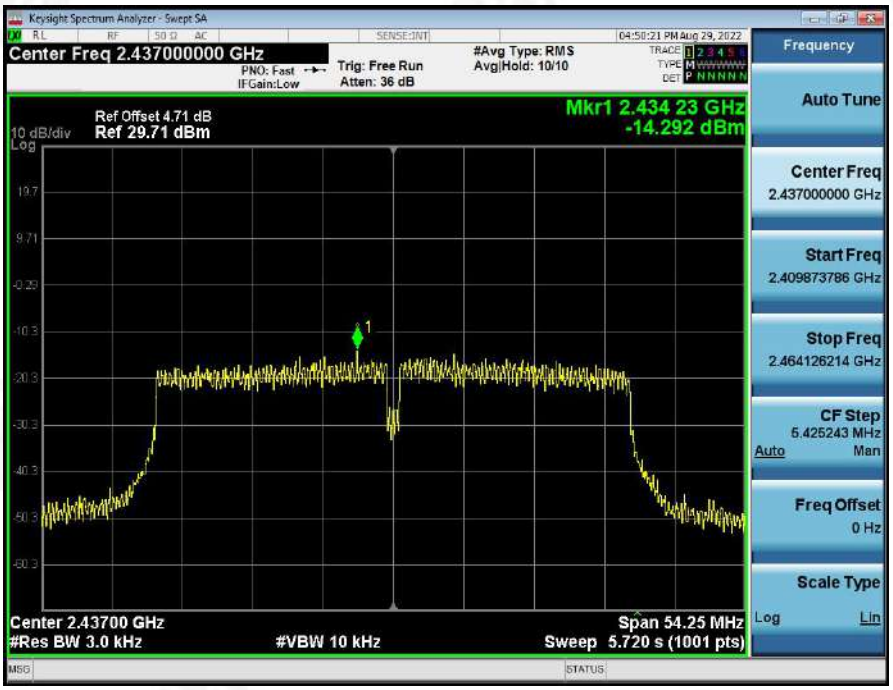
Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX n Mode(40M)		

Frequency	Power Spectral Density (dBm/3kHz)		Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	ANT1	ANT2			
2422 MHz	-11.922	-12.260	-9.08	8	PASS
2437 MHz	-14.292	-14.794	-11.53	8	PASS
2452 MHz	-13.506	-13.403	-10.44	8	PASS

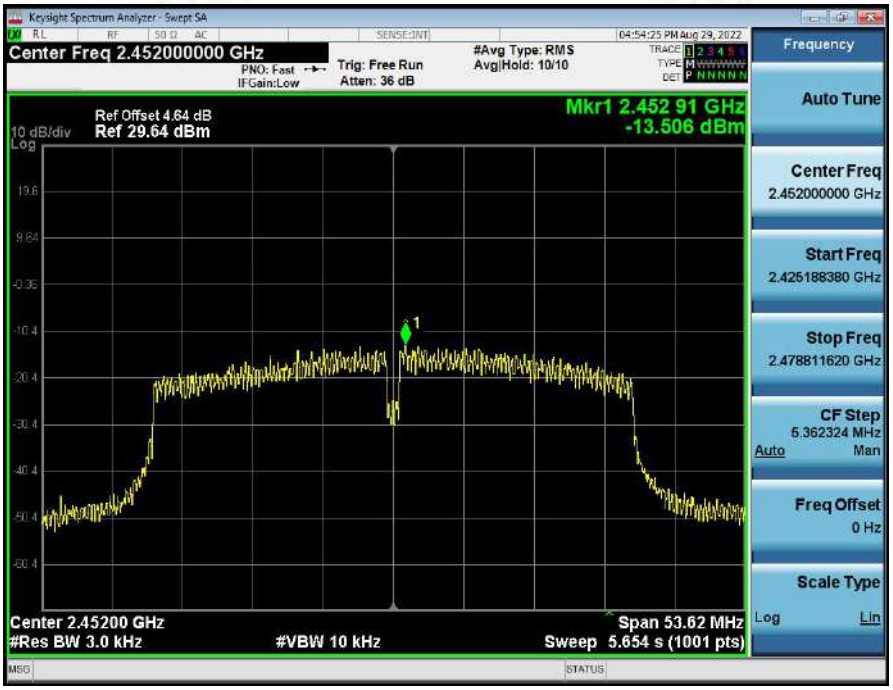
ANT1- TX CH03



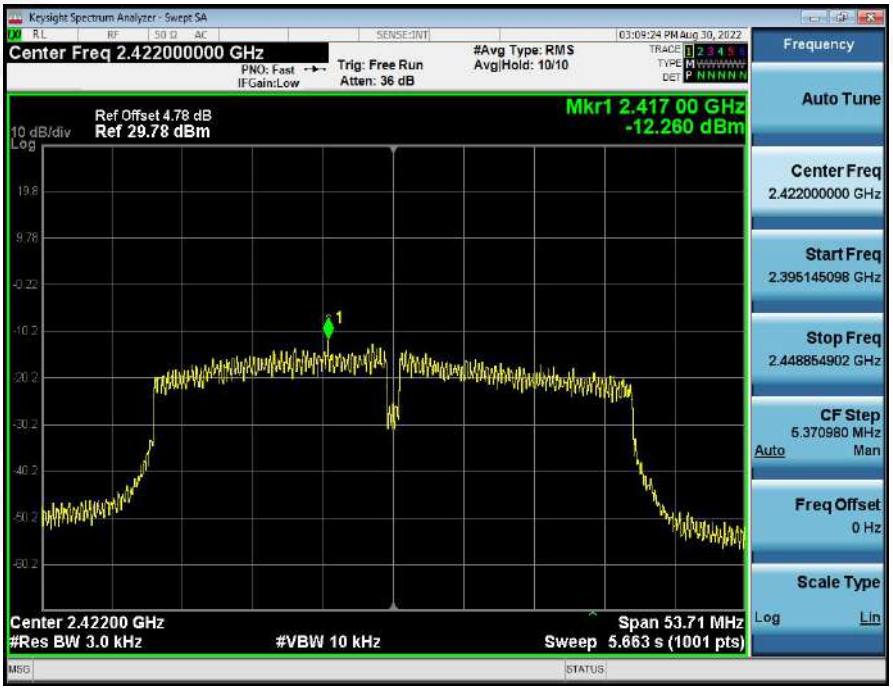
ANT1-TX CH06



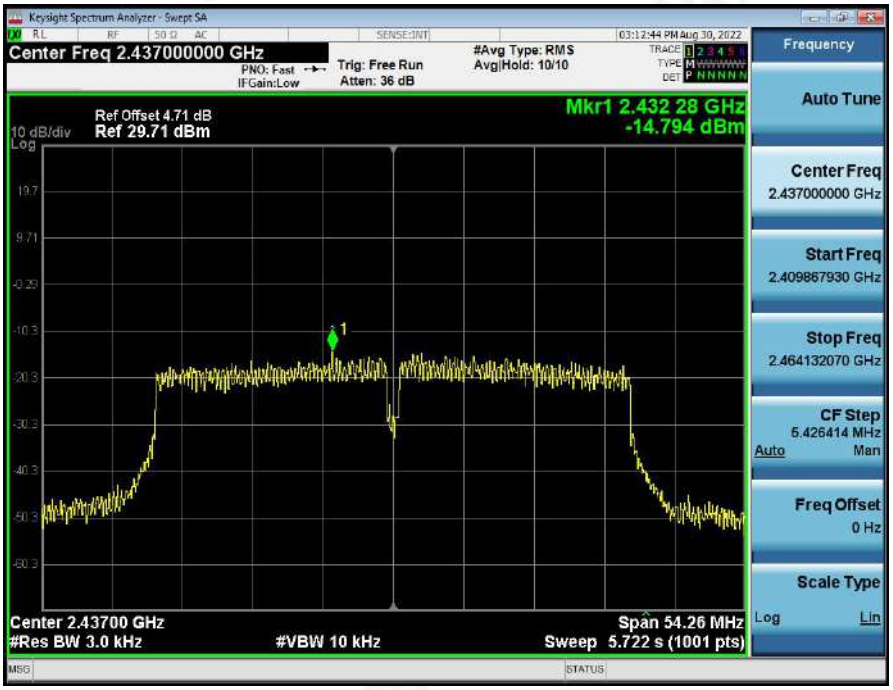
ANT1-TX CH09



ANT2- TX CH03



ANT2-TX CH06



ANT2-TX CH09

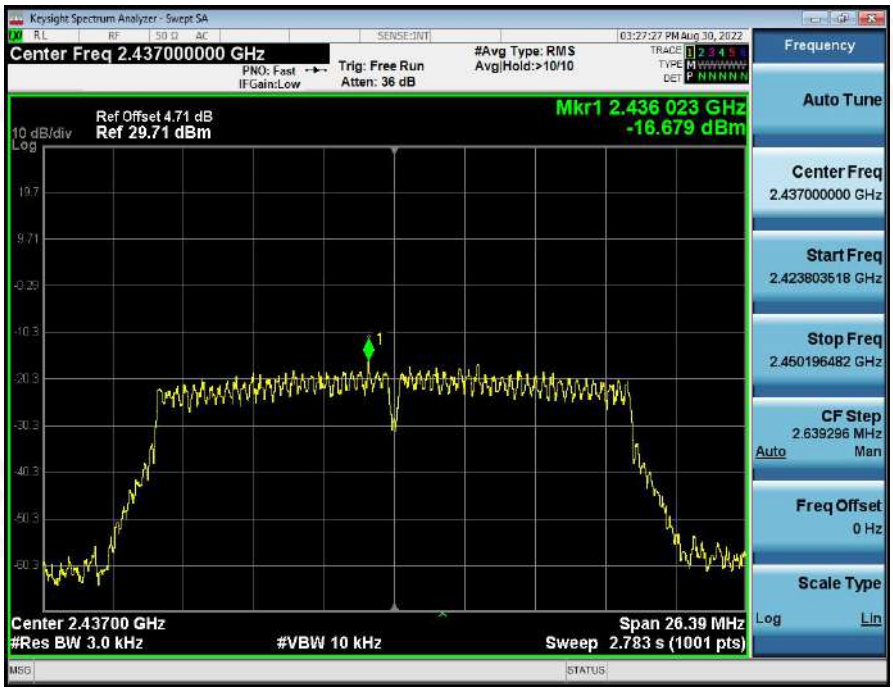
Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold: 10/10
03:16:56 PM Aug 30, 2022
Ref Offset 4.64 dB
10 dB/div
Ref 29.64 dBm
Log
Mkr1 2.456 67 GHz
-13.403 dBm
Center 2.45200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 53.69 MHz
Sweep 5.661 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.425153306 GHz
Stop Freq
2.478846694 GHz
CF Step
5.369339 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX ax Mode(20M)		

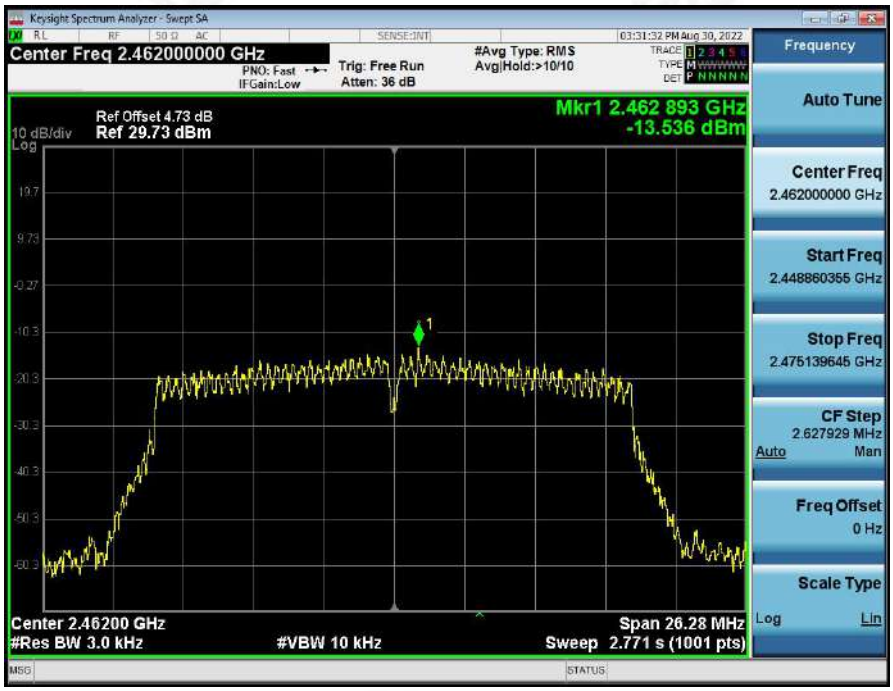
Frequency	Power Spectral Density (dBm/3kHz)		Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	ANT1	ANT2			
2412 MHz	-15.388	-12.740	-10.85	8	PASS
2437 MHz	-16.679	-14.307	-12.32	8	PASS
2462 MHz	-13.536	-11.930	-9.65	8	PASS

ANT1-TX CH01

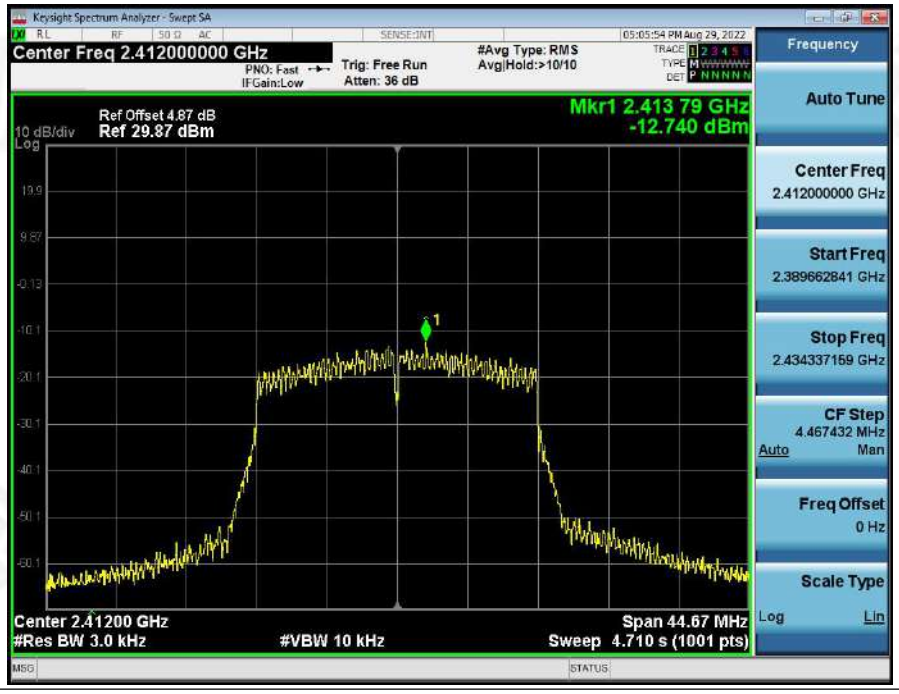
ANT1-TX CH06



ANT1-TX CH11



ANT2-TX CH01


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.412000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold:>10/10
05:05:54 PM Aug 29, 2022
Frequency
Auto Tune
Ref Offset 4.87 dB
10 dB/div
Ref 29.87 dBm
Log
Mkr1 2.413 79 GHz
-12.740 dBm
Center Freq
2.412000000 GHz
Start Freq
2.389662841 GHz
Stop Freq
2.434337159 GHz
CF Step
4.467432 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
Center 2.41200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 44.67 MHz
Sweep 4.710 s (1001 pts)
MSG
STATUS

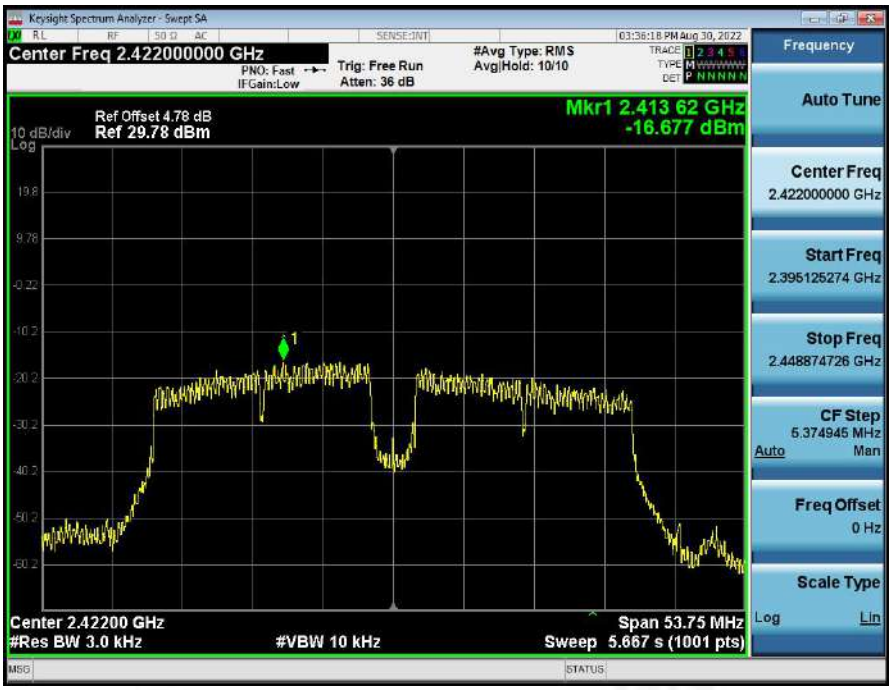
ANT2-TX CH06

ANT2-TX CH11

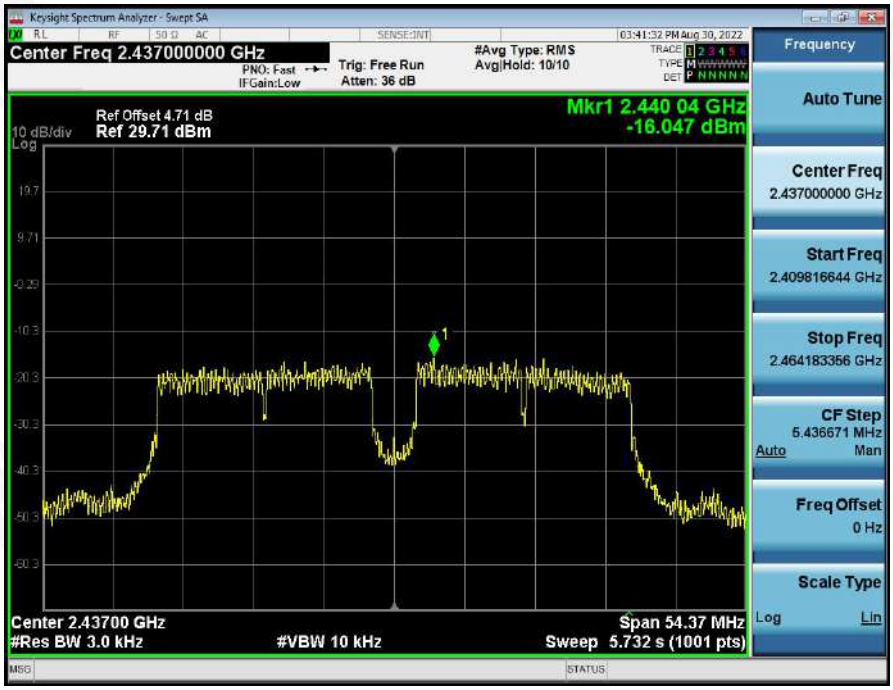
Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage：	DC 12V
Test Mode ：	TX ax Mode(40M)		

Frequency	Power Spectral Density (dBm/3kHz)		Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	ANT1	ANT2			
2422 MHz	-16.677	-15.278	-12.91	8	PASS
2437 MHz	-16.047	-16.009	-13.02	8	PASS
2452 MHz	-16.176	-13.400	-11.56	8	PASS

ANT1- TX CH03



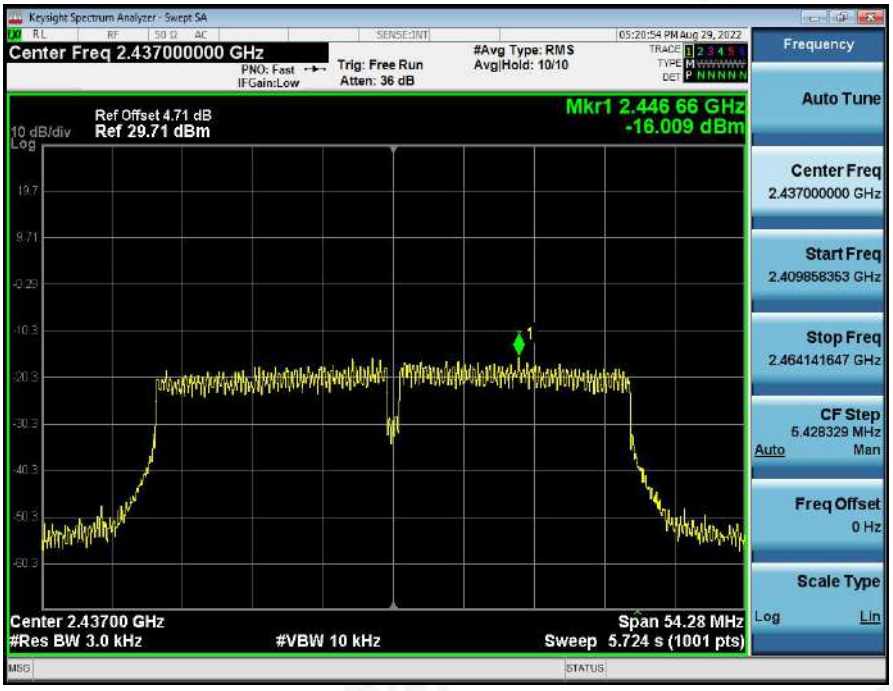
ANT1-TX CH06



ANT1-TX CH09

ANT2- TX CH03

ANT2-TX CH06



ANT2-TX CH09

Keysight Spectrum Analyzer - Swept SA
Center Freq 2.452000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
#Avg Type: RMS
Avg|Hold: 10/10
05:25:04 PM Aug 29, 2022
Ref Offset 4.64 dB
10 dB/div
Ref 29.64 dBm
Log
Mkr1 2.457 26 GHz
-13.400 dBm
Center 2.45200 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 53.72 MHz
Sweep 5.664 s (1001 pts)
Frequency
Auto Tune
Center Freq
2.452000000 GHz
Start Freq
2.425140916 GHz
Stop Freq
2.478859084 GHz
CF Step
5.371817 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

7. CHANNEL BANDWIDTH& 99% OCCUPY BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 xRBW.
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.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

7.5 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.

7.6 TEST RESULT

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX b Mode		

	Test CH	-6dB Occupy Bandwidth (MHz)							
		802.11 b	802.11 g	802.11n (HT20)	802.11n (HT40)	802.11ax (VHT20)	802.11ax (VHT40)	Limit(KHz)	Result
ANT1	Lowest	8.107	16.09	17.33	35.08	17.33	31.38	>500	Pass
	Middle	8.605	16.42	17.67	36.47	17.73	36.49		
	Highest	8.113	16.09	17.33	33.91	17.64	35.18		
ANT2	Lowest	8.098	16.08	17.35	32.71	17.29	35.73	>500	Pass
	Middle	8.585	16.41	17.66	36.46	17.71	36.48		
	Highest	8.092	16.32	17.33	32.91	17.60	33.45		

Test plot as follows:

ANT1-802.11b

ANT1-802.11g

Lowest channel

Middle channel

Highest channel

ANT1-802.11n20

ANT1-802.11n40

Lowest channel

Middle channel

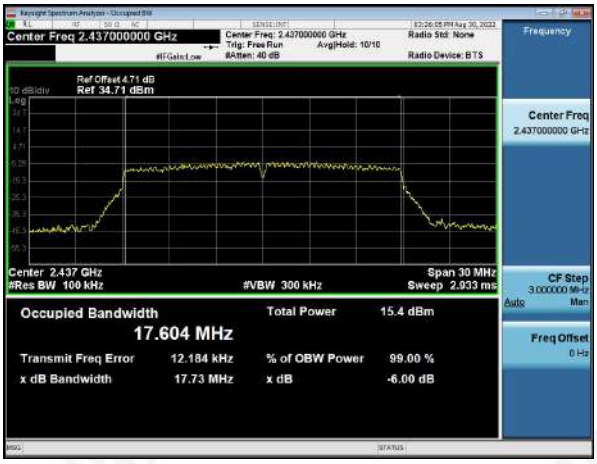
Highest channel

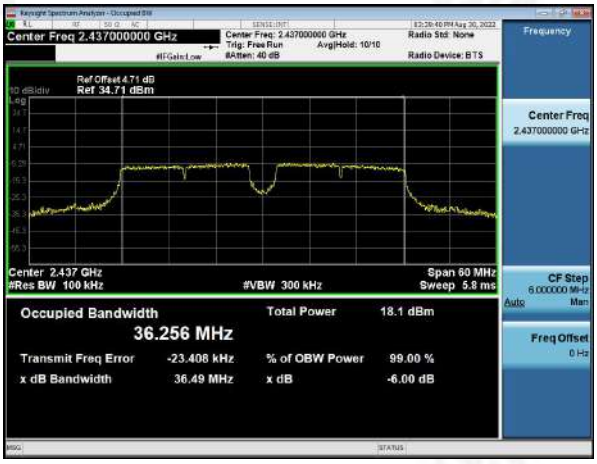
ANT1-802.11ax(HE20)

ANT1-802.11ax(VHT40)

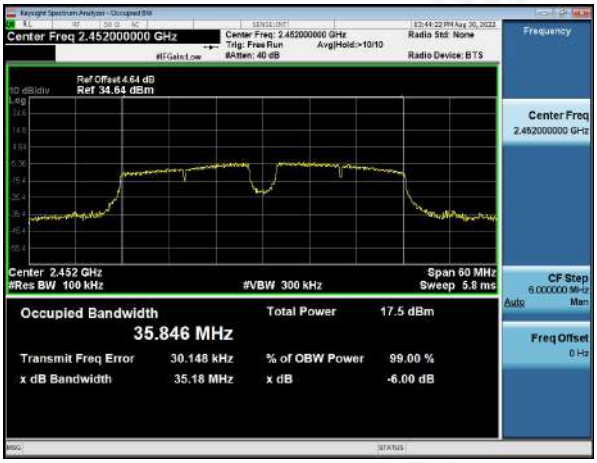
Lowest channel

Middle channel





Highest channel



ANT2-802.11b

Lowest channel

ANT2-802.11g

Middle channel

Highest channel

ANT2-802.11n20

ANT2-802.11n40

Lowest channel

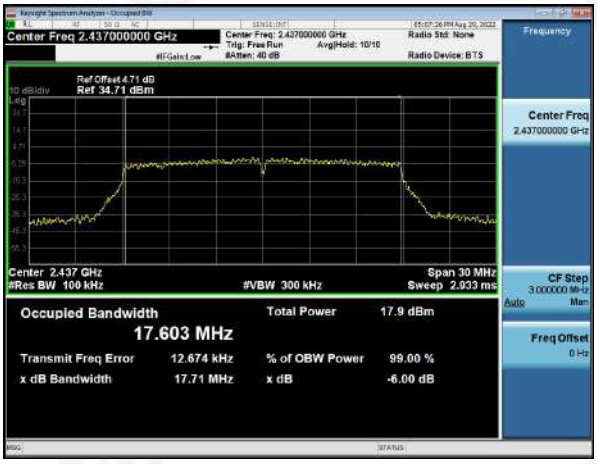
Middle channel

Highest channel

ANT2-802.11ax(HE20)

Lowest channel

Middle channel



Highest channel

ANT2-802.11ax(VHT40)

8.PEAK OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

8.1 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

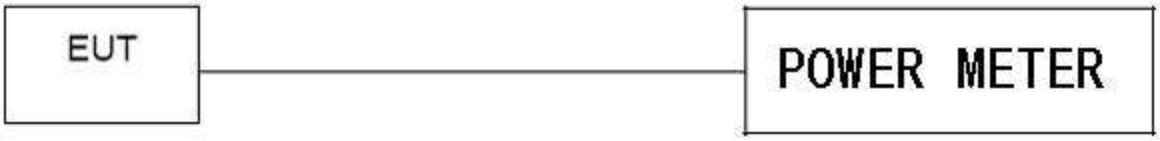
8.2 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 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.

8.6 TEST RESULT

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V

Test Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)		Total power (dBm)	Limit (dBm)
		ANT 1	ANT 2		
TX 802.11b Mode					
CH01	2412	18.43	18.02	-	30.00
CH06	2437	18.81	18.52	-	30.00
CH11	2462	18.88	18.67	-	30.00
TX 802.11g Mode					
CH01	2412	16.59	16.31	-	30.00
CH06	2437	16.84	16.61	-	30.00
CH11	2462	16.92	16.68	-	30.00
TX 802.11n(HT20) Mode					
CH01	2412	15.27	15.05	18.17	30.00
CH06	2437	15.65	15.46	18.57	30.00
CH11	2462	15.72	15.53	18.64	30.00
TX 802.11n(HT40) Mode					
CH03	2422	14.53	14.32	17.44	30.00
CH06	2437	14.85	14.67	17.77	30.00
CH09	2452	15.01	14.96	18.00	30.00
TX 802.11ax(HE20) Mode					
CH01	2412	15.17	14.94	18.07	30.00
CH06	2437	15.41	15.23	18.33	30.00
CH11	2462	15.63	15.49	18.57	30.00
TX 802.11ax(VHT40) Mode					
CH03	2422	14.31	14.05	17.19	30.00
CH06	2437	14.77	14.32	17.56	30.00
CH09	2452	14.94	14.83	17.90	30.00

Note:
1. In 802.11b and 802.11g mode, the ANT 1 and ANT 2 can't work at TX and RX mode at the same time;
2. In 802.11n(HT20), 802.11n(HT40), 802.11ax(HE20), 802.11ax(VHT40) mode the ANT 1 and ANT 2 can work at TX and RX mode at the same time;
3. For power test the duty cycle is 100% in continous transmitting mode;
4. TX means Transmit, RX means Receive.

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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 in15.209(a).

9.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

A) Set the RBW = 100KHz.
B) Set the VBW = 300KHz.
C) Sweep time = auto couple.
D) Detector function = peak.
E) Trace mode = max hold.
F) Allow trace to fully stabilize.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP

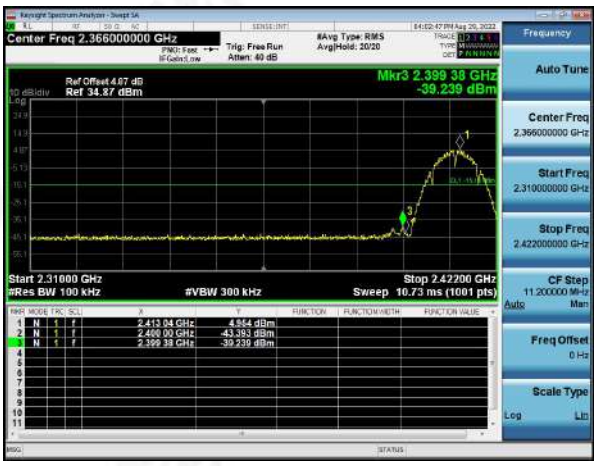
9.5 EUT OPERATION CONDITIONS

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.

9.6 TEST RESULTS

Test plot as follows:

Test mode:	ANT1- 802.11b



Lowest channel

Highest channel

Test mode:	ANT1- 802.11g

Lowest channel

Highest channel

Test mode:	ANT1- 802.11n(HT20)

Lowest channel

Highest channel

Test mode:	ANT1- 802.11n(HT40)

Lowest channel

Highest channel

Test mode:	ANT1- 802.11ax(HE20)

Lowest channel

Highest channel

Test mode:	ANT1- 802.11ax(VHT40)

Lowest channel

Highest channel

Test plot as follows:

ANT1- 802.11b

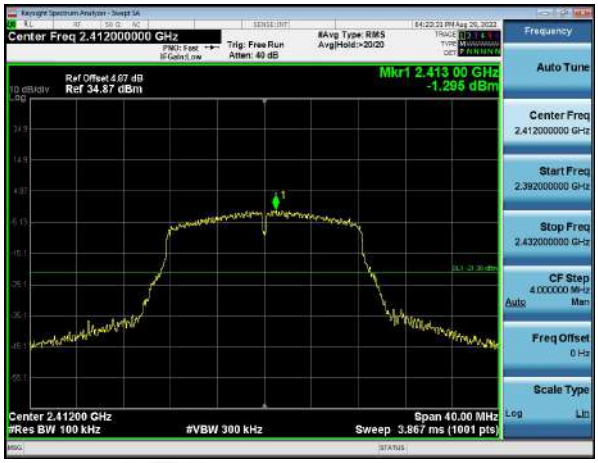
Lowest channel

Middle channel

Highest channel

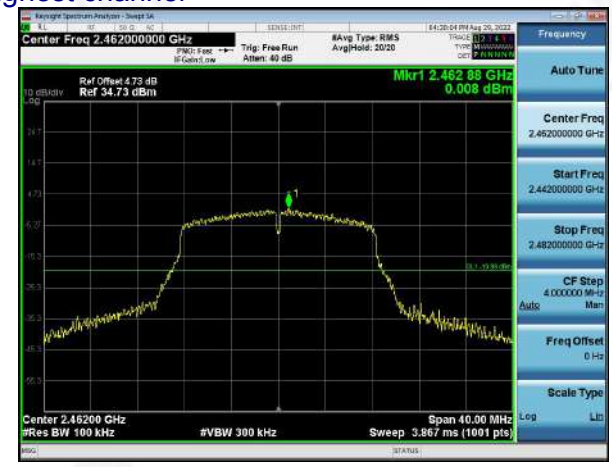
ANT1- 802.11g

Lowest channel



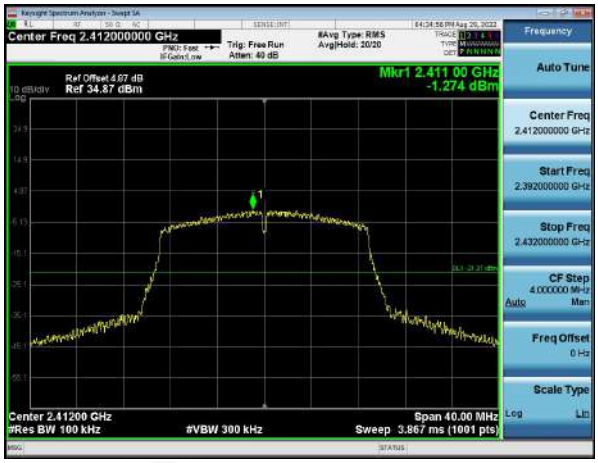
Middle channel

Highest channel



ANT1- 802.11n(HT20)

Lowest channel



Middle channel

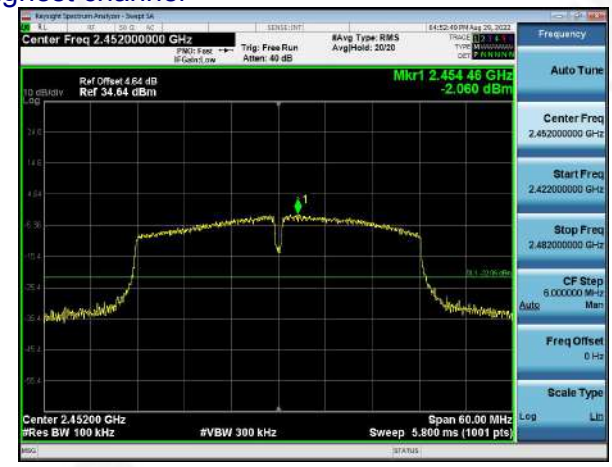
Highest channel

ANT1- 802.11n(HT40)

Lowest channel

Middle channel

Highest channel



ANT1- 802.11ax(HE20)

Lowest channel

Middle channel

Highest channel

ANT1- 802.11ax(VHT40)

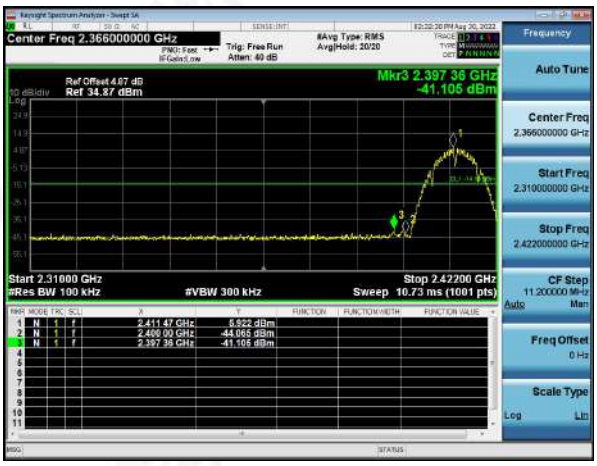
Lowest channel

Middle channel

Highest channel

Test plot as follows:

Test mode:	ANT2- 802.11b



Lowest channel

Highest channel

Test mode:	ANT2- 802.11g

Lowest channel

Highest channel

Test mode:	ANT2- 802.11n(HT20)

Lowest channel

Highest channel

Test mode:	ANT2- 802.11n(HT40)

Lowest channel

Highest channel

Test mode:	ANT2- 802.11ax(HE20)

Lowest channel

Highest channel

Test mode:	ANT2- 802.11ax(VHT40)

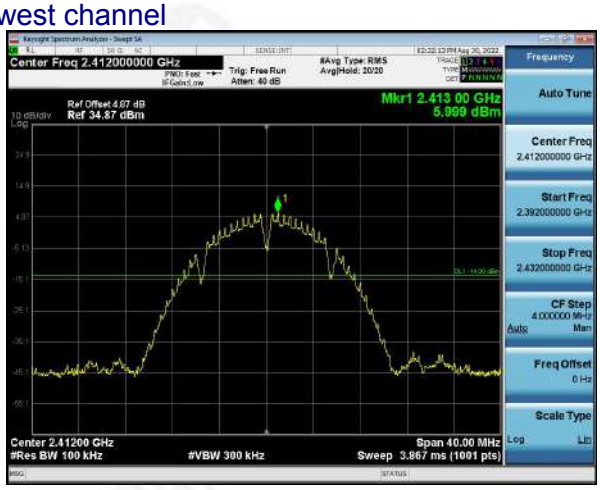
Lowest channel

Highest channel

Test plot as follows:

ANT2- 802.11b

Lowest channel

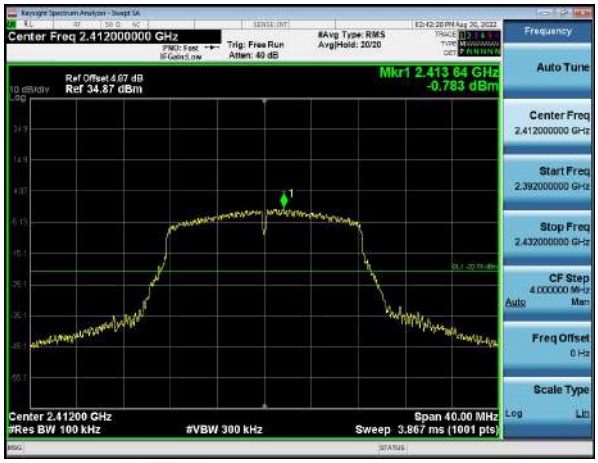


Middle channel

Highest channel

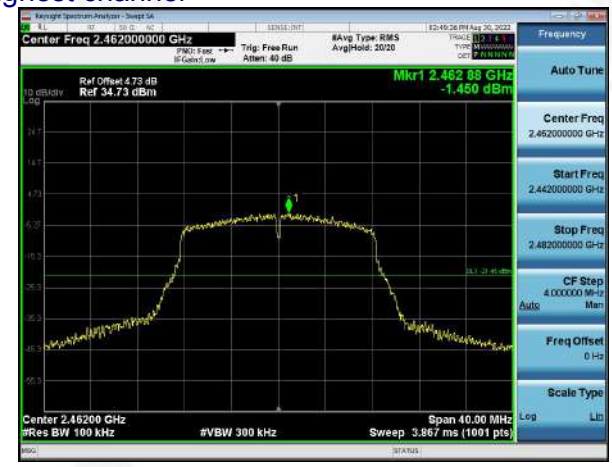
ANT2- 802.11g

Lowest channel



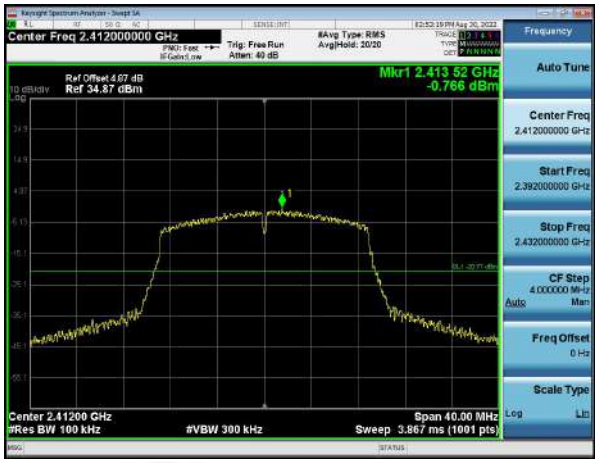
Middle channel

Highest channel



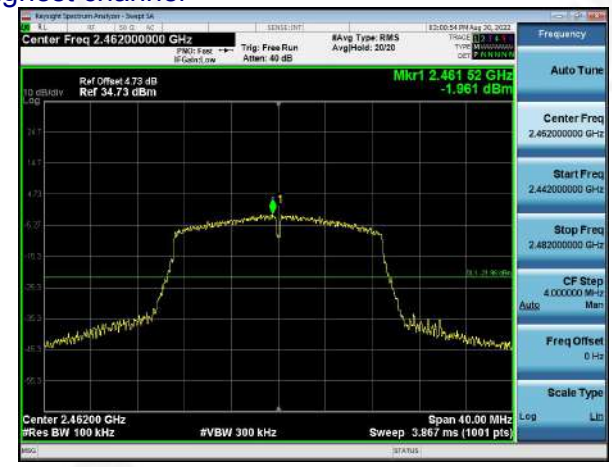
ANT2- 802.11n(HT20)

Lowest channel



Middle channel

Highest channel

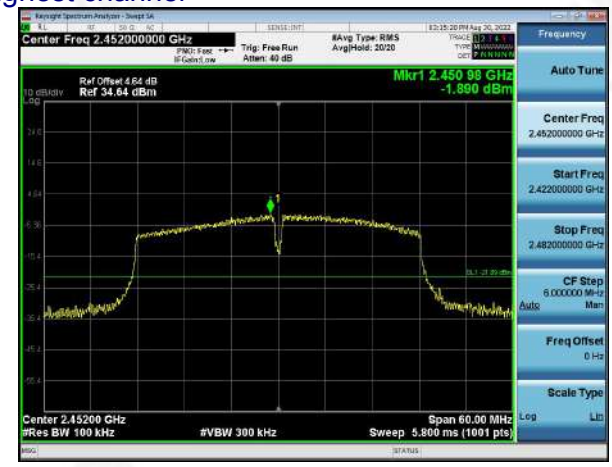


ANT2- 802.11n(HT40)

Lowest channel

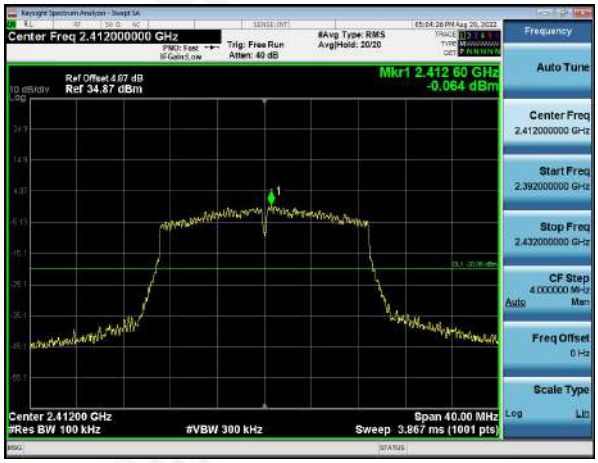
Middle channel

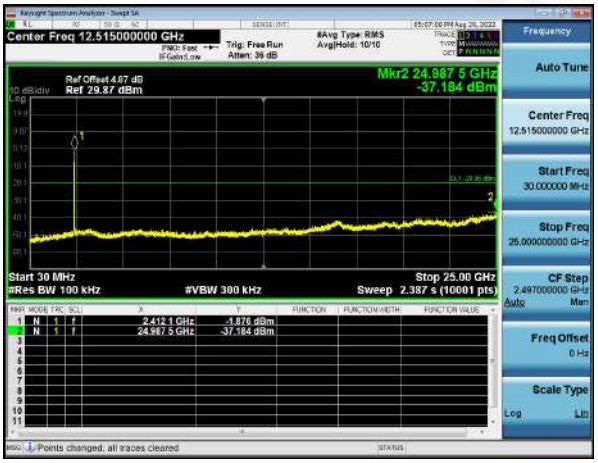
Highest channel



ANT2- 802.11ax(HE20)

Lowest channel





Middle channel

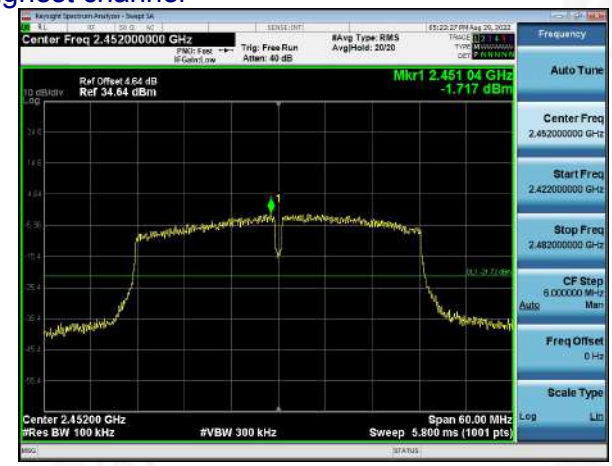
Highest channel

ANT2- 802.11ax(VHT40)

Lowest channel

Middle channel

Highest channel



10. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
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. 15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The product has 2 antennas, The antenna is External Antenna, the best case gain of the antenna is 1.02 dBi@2.4G, reference to the appendix II for details	

11. TEST SETUP PHOTO

Reference to the appendix I for details.

12. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

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