FCC&IC TEST REPORT
FCC ID:2AO8RNI-9000
IC:29263-NI9000

Report Number.....	ZKT-230316L1780E-1
Date of Test.....	Apr.13, 2023 to May.6, 2023
Date of issue.....	May.6, 2023
Total number of pages.....	51
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	**Netvue Technologies Co.,Ltd.**
Address	Room A501-502, Academy of Aerospace Technology, 10 Kejinan Road, Nanshan District, Shenzhen, China, 518057
Manufacturer's name	**Netvue Technologies Co.,Ltd.**
Address	Room A501-502, Academy of Aerospace Technology, 10 Kejinan Road, Nanshan District, Shenzhen, China, 518057
Test specification:	
Standard.....	FCC CFR Title 47 Part 15 Subpart C Section 15.247 RSS-247 Issue 2, February 2017 RSS-GEN Issue 5 April 2018 Amendment 2(February 2021) 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.
This report shall not be reproduced except in full, without the written approval of ZKT, this document may be altered or revised by ZKT, personal only, and shall be noted in the revision of the document.

Product name:	Peekababy
Trademark :	Netvue
Model/Type reference:	NI-9000
Serial model No:	NI-9001,NI-9002, NI-9003, NI-9004, NI-9005, NI-9006, NI-9007, NI-9008, NI-9009
Ratings:	DC 5V 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

Table of Contents

Page

1. VERSION 5
2. SUMMARY OF TEST RESULTS 6
   2.1 TEST FACILITY 7
   2.2 MEASUREMENT UNCERTAINTY 7
3. GENERAL INFORMATION 8
   3.1 GENERAL DESCRIPTION OF EUT 8
   3.2 DESCRIPTION OF TEST MODES 9
   3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 9
   3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 10
   3.5EQUIPMENTS LIST FOR ALL TEST ITEMS 11
4. EMC EMISSION TEST 13
   4.1 CONDUCTED EMISSION MEASUREMENT 13
      4.1.1 POWER LINE CONDUCTED EMISSION Limits 13
      4.1.2 TEST PROCEDURE 13
      4.1.3 DEVIATION FROM TEST STANDARD 13
      4.1.4 TEST SETUP 14
      4.1.5 EUT OPERATING CONDITIONS 14
      4.1.6 TEST RESULT 15
   4.2 RADIATED EMISSION MEASUREMENT 17
      4.2.1 RADIATED EMISSION LIMITS 17
      4.2.2 TEST PROCEDURE 17
      4.2.3 DEVIATION FROM TEST STANDARD 18
      4.2.4 TEST SETUP 18
      4.2.5 EUT OPERATING CONDITIONS 19
      4.2.6 TEST RESULTS 19
5.RADIATED BAND EMISSIONMEASUREMENT 24
   5.1 TEST REQUIREMENT: 24
   5.2 TEST PROCEDURE 24
   5.3 DEVIATION FROM TEST STANDARD 24
   5.4 TEST SETUP 25
   5.5 EUT OPERATING CONDITIONS 25
   5.6 TEST RESULT 26
6.POWER SPECTRAL DENSITY TEST 28
   6.1 APPLIED PROCEDURES / LIMIT 28
   6.2 TEST PROCEDURE 28
   6.3 DEVIATION FROM STANDARD 28
   6.4 TEST SETUP 28
   6.5 EUT OPERATION CONDITIONS 28

6.6 TEST RESULT 29
7. CHANNEL BANDWIDTH& 99% OCCUPY BANDWIDTH 35
7.1 APPLIED PROCEDURES / LIMIT 35
7.2 TEST PROCEDURE 35
7.3 DEVIATION FROM STANDARD 35
7.4 TEST SETUP 35
7.5 EUT OPERATION CONDITIONS 35
7.6 TEST RESULT 36
8.PEAK OUTPUT POWER TEST 41
8.1 APPLIED PROCEDURES/LIMIT 41
8.2 TEST PROCEDURE 41
8.3 DEVIATION FROM STANDARD 41
8.4 TEST SETUP 41
8.5 EUT OPERATION CONDITIONS 41
8.6 TEST RESULT 42
9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION 43
9.1 APPLICABLE STANDARD 43
9.2 TEST PROCEDURE 43
9.3 DEVIATION FROM STANDARD 43
9.4 TEST SETUP 43
9.5 EUT OPERATION CONDITIONS 43
9.6 TEST RESULTS 43
10. ANTENNA REQUIREMENT 50
11. TEST SETUP PHOTO 51
12. EUT CONSTRUCTIONAL DETAILS 51

1. VERSION

Report No.	Version	Description	Approved
ZKT-230316L1780E-1	Rev.01	Initial issue of report	May.6, 2023

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC part 15 C RSS-247 Issue 2 RSS-Gen Issue 5			
Standard Section	Test Item	Result	Remark
FCC part 15.203/15.247 (c) RSS-GEN §6.8	Antenna requirement	PASS	
FCC part 15.207 RSS-Gen§8.8 RSS-247§ 3.1	AC Power Line Conducted Emission	PASS	
FCC part 15.247 (b)(3) RSS-247§5.4	Conducted Peak Output Power	PASS	
FCC part 15.247 (a)(2) RSS-GEN §6.7 RSS-247 §5.2	6dB Channel Bandwidth& 99% OCB	PASS	
FCC part 15.247 (e) RSS-247 §5.2	Power Spectral Density	PASS	
FCC part 15.247(d) RSS-247 §5.5	Band Edge	PASS	
FCC part 15.205/15.209 RSS-Gen §8.9&8.10	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:	Peekababy
Model No.:	NI-9000
Model Different.:	NI-9001,NI-9002, NI-9003, NI-9004, NI-9005, NI-9006, NI-9007, NI-9008, NI-9009
Difference:	All the same except the model number.
Hardware Version:	M23_PAD_V1_1_1202
Software Version:	NI-9000_v1.0.0.C00
Sample ID:	#230413-A01
Sample(s) Status:	Engineer sample
Frequency:	2412-2462MHz
Channel numbers:	802.11b/802.11g /802.11n(HT20)/:11
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum(DSSS) 802.11g/802.11n(H20): Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	PCB Antenna
Antenna gain:	1.18 dBi
Adapter 1:	Manufacturer: Dongguan Aohai Technology Co.,Ltd. Model:A18A-050100U-US2 Input: AC 100-240V 50/60Hz 0.2A Output: DC 5V/1A
Adapter 2:	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO.,LTD Model: TPA-46B050100UU Input: AC 100-240V 50/60Hz 0.15A Output: DC 5V/1A
Adapter 3:	Manufacturer: Chenzhou Frecom Electronics Co.,Ltd Model:F05L5-050100SPAU-U Input: AC 100-240V 50/60Hz 0.15A Output: DC 5V/1A
Remark:	All the modes and the adapters have tested and recorded the worst mode and adapter in the report.

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)	
Lowest channel	2412MHz	
Middle channel	2437MHz	
Highest channel	2462MHz	

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:

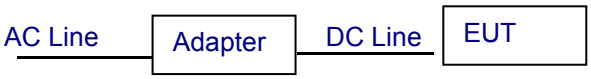
Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

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

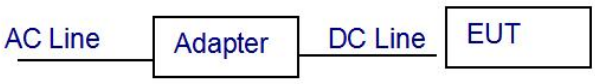
Test Software	Test Tool
Power level setup	<13dBm

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

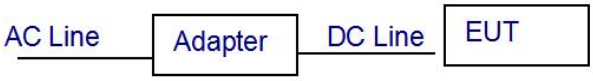
Conducted Emission



Radiated Emission



Conducted Spurious



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	Peekababy	Netvue	NI-9000	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	MY55370835	Oct. 28, 2022	Oct. 27, 2023
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSQ	100363	Oct. 28, 2022	Oct. 27, 2023
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Oct. 28, 2022	Oct. 27, 2023
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	Nov. 02, 2022	Nov. 01, 2023
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	Nov. 01, 2022	Oct. 31, 2023
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	Oct. 28, 2022	Oct. 27, 2023
7	Loop Antenna	TESEQ	HLA6121	58357	Nov. 01, 2022	Oct. 31, 2023
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	060747	Nov. 15, 2022	Nov. 14, 2023
9	Amplifier (1GHz-26.5GHz)	Agilent	8449B	3008A00315	Oct. 28, 2022	Oct. 27, 2023
10	Amplifier (500MHz-40GHz)	全聚达	DLE-161	097	Oct. 28, 2022	Oct. 27, 2023
11	Test Cable	N/A	R-01	N/A	Oct. 28, 2022	Oct. 27, 2023
12	Test Cable	N/A	R-02	N/A	Oct. 28, 2022	Oct. 27, 2023
13	Test Cable	N/A	R-03	N/A	Oct. 28, 2022	Oct. 27, 2023
14	Test Cable	N/A	RF-01	N/A	Oct. 28, 2022	Oct. 27, 2023
15	Test Cable	N/A	RF-02	N/A	Oct. 28, 2022	Oct. 27, 2023
16	Test Cable	N/A	RF-03	N/A	Oct. 28, 2022	Oct. 27, 2023
17	ESG Signal Generator	Agilent	E4421B	N/A	Oct. 21, 2022	Oct. 20, 2023
18	Sgnal Generator	Agilent	N5182A	N/A	Oct. 21, 2022	Oct. 20, 2023
19	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	Nov. 15, 2022	Nov. 14, 2023
20	Wideband Radio Communication Test	R&S	CMW500	106504	Oct. 28, 2022	Oct. 27, 2023
21	MWRF Power Meter Test system	MW	MW100-RPCB	N/A	Oct. 21, 2022	Oct. 20, 2023
22	D.C. Power Supply	LongWei	TPR-6405D	N/A	\	\
23	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\
24	RF Software	MW	MTS8310	V2.0.0.0	\	\
25	Turntable	MF	MF-7802BS	N/A	\	\
26	Antenna tower	MF	MF-7802BS	N/A	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Oct. 28, 2022	Oct. 27, 2023
2	LISN	CYBERTEK	EM5040A	E1850400149	Oct. 28, 2022	Oct. 27, 2023
3	Test Cable	N/A	C01	N/A	Oct. 28, 2022	Oct. 27, 2023
4	Test Cable	N/A	C02	N/A	Oct. 28, 2022	Oct. 27, 2023
5	EMI Test Receiver	R&S	ESRP3	101946	Oct. 28, 2022	Oct. 27, 2023
6	Absorbing Clamp	DZ	ZN23201	N/A	Oct. 28, 2022	Oct. 27, 2023

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207, RSS-Gen§8.8, RSS-247§ 3.1
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/IC
0.50 -5.0	56.00	46.00	FCC/IC
5.0 -30.0	60.00	50.00	FCC/IC

Note:

(1) *Decreases with the logarithm of the frequency.

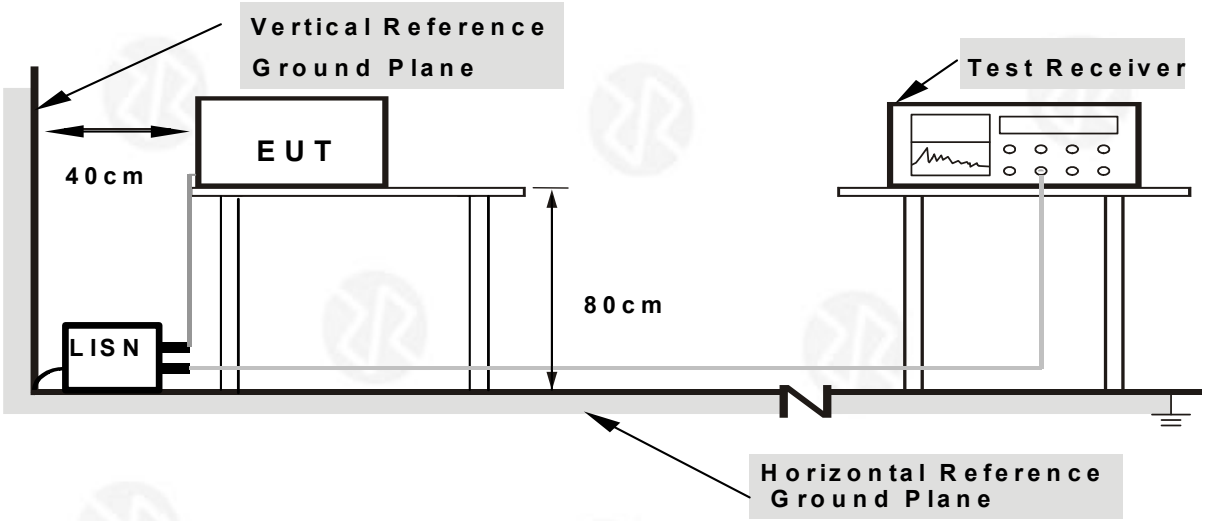
4.1.2 TEST PROCEDURE

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

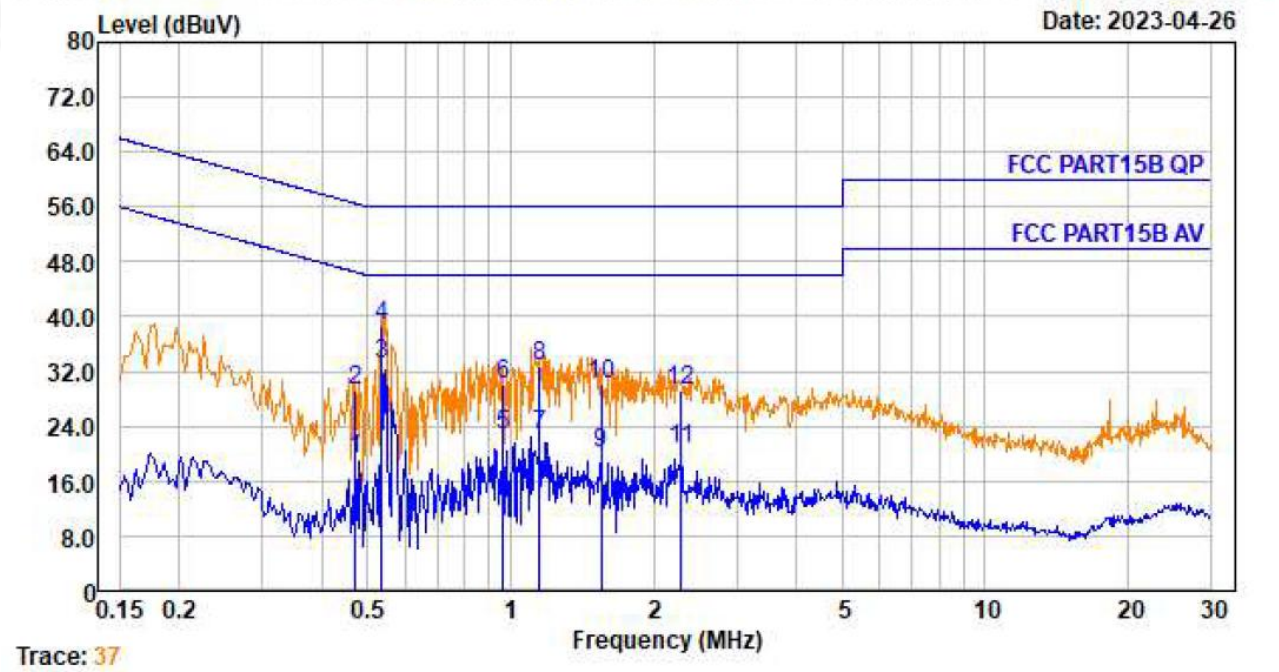
4.1.5 EUT OPERATING CONDITIONS

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

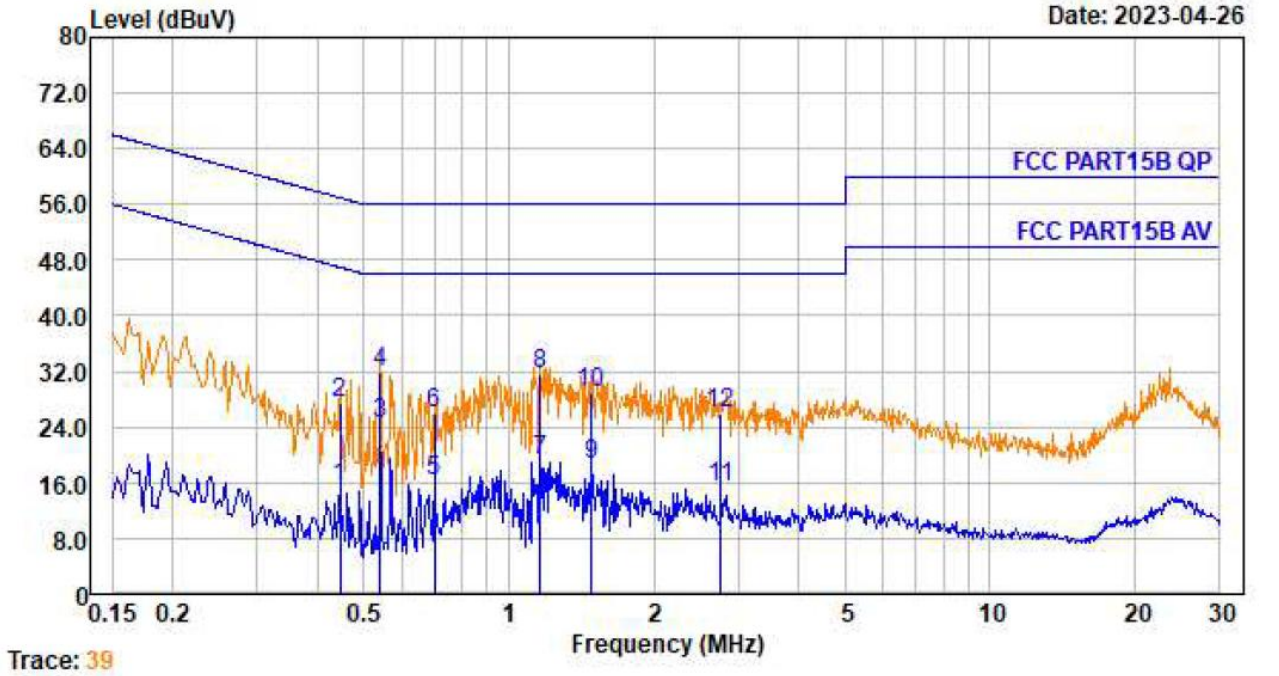
Temperature :	26℃	Relative Humidity:	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz		



No.	Freq MHz	Cable Loss dB	LISN Factor dB/m	Receiver Reading dBuV	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	0.471	0.01	9.57	9.69	19.27	46.49	-27.22	Average
2.	0.471	0.01	9.57	19.70	29.28	56.49	-27.21	QP
3.	0.535	0.01	9.57	23.57	33.15	46.00	-12.85	Average
4.	0.535	0.01	9.57	29.12	38.70	56.00	-17.30	QP
5.	0.963	0.02	9.58	13.03	22.63	46.00	-23.37	Average
6.	0.963	0.02	9.58	20.60	30.20	56.00	-25.80	QP
7.	1.153	0.02	9.58	13.16	22.76	46.00	-23.24	Average
8.	1.153	0.02	9.58	23.12	32.72	56.00	-23.28	QP
9.	1.552	0.04	9.58	10.32	19.94	46.00	-26.06	Average
10.	1.552	0.04	9.58	20.53	30.15	56.00	-25.85	QP
11.	2.285	0.05	9.58	11.13	20.76	46.00	-25.24	Average
12.	2.285	0.05	9.58	19.55	29.18	56.00	-26.82	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	LISN Factor dB/m	Receiver Reading dBuV	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	0.447	0.01	9.58	5.84	15.43	46.93	-31.50	Average
2.	0.447	0.01	9.58	17.97	27.56	56.93	-29.37	QP
3.	0.541	0.01	9.58	15.02	24.61	46.00	-21.39	Average
4.	0.541	0.01	9.58	22.30	31.89	56.00	-24.11	QP
5.	0.701	0.02	9.58	6.64	16.24	46.00	-29.76	Average
6.	0.701	0.02	9.58	16.46	26.06	56.00	-29.94	QP
7.	1.160	0.03	9.58	9.62	19.23	46.00	-26.77	Average
8.	1.160	0.03	9.58	21.84	31.45	56.00	-24.55	QP
9.	1.487	0.03	9.58	8.96	18.57	46.00	-27.43	Average
10.	1.487	0.03	9.58	19.23	28.84	56.00	-27.16	QP
11.	2.765	0.06	9.60	5.63	15.29	46.00	-30.71	Average
12.	2.765	0.06	9.60	16.25	25.91	56.00	-30.09	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, RSS-Gen §8.9, RSS-Gen §8.10
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:

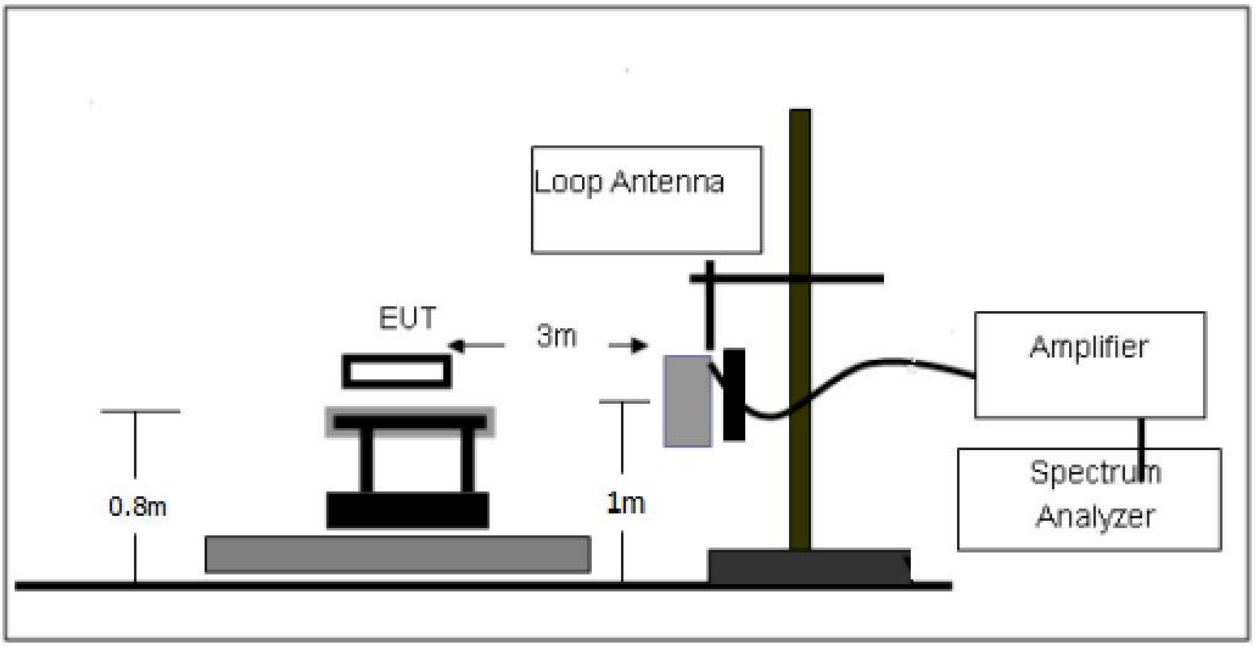
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

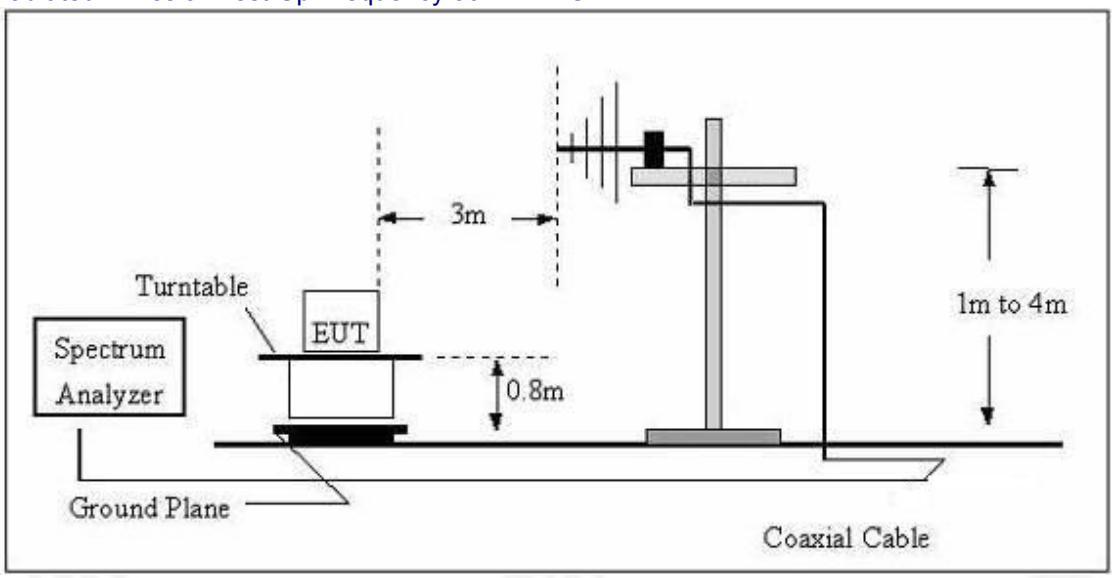
No deviation

4.2.4 TEST SETUP

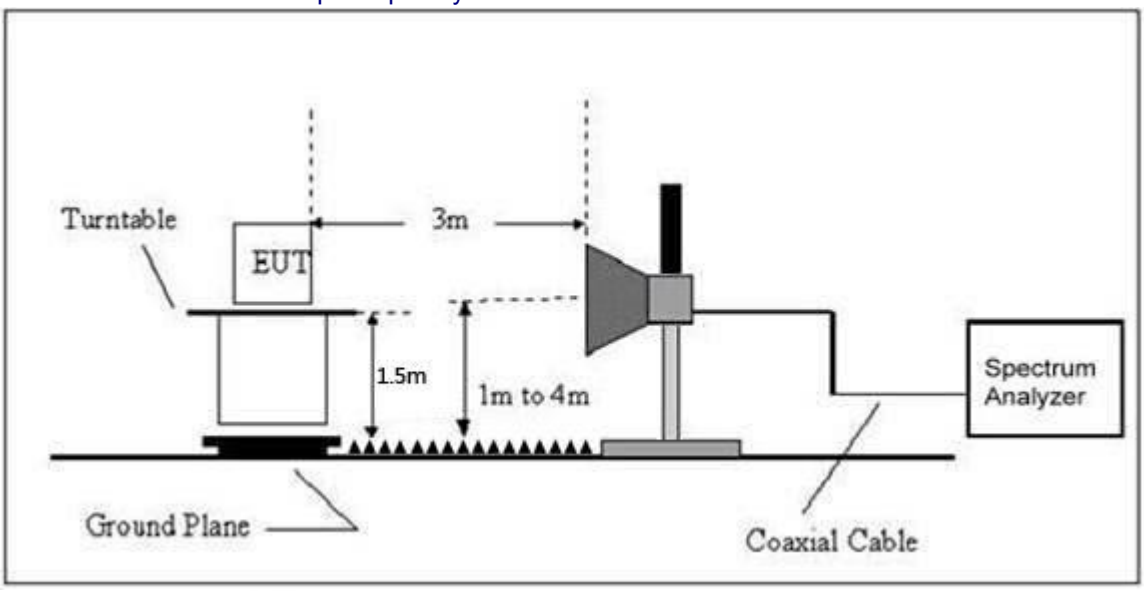
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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.

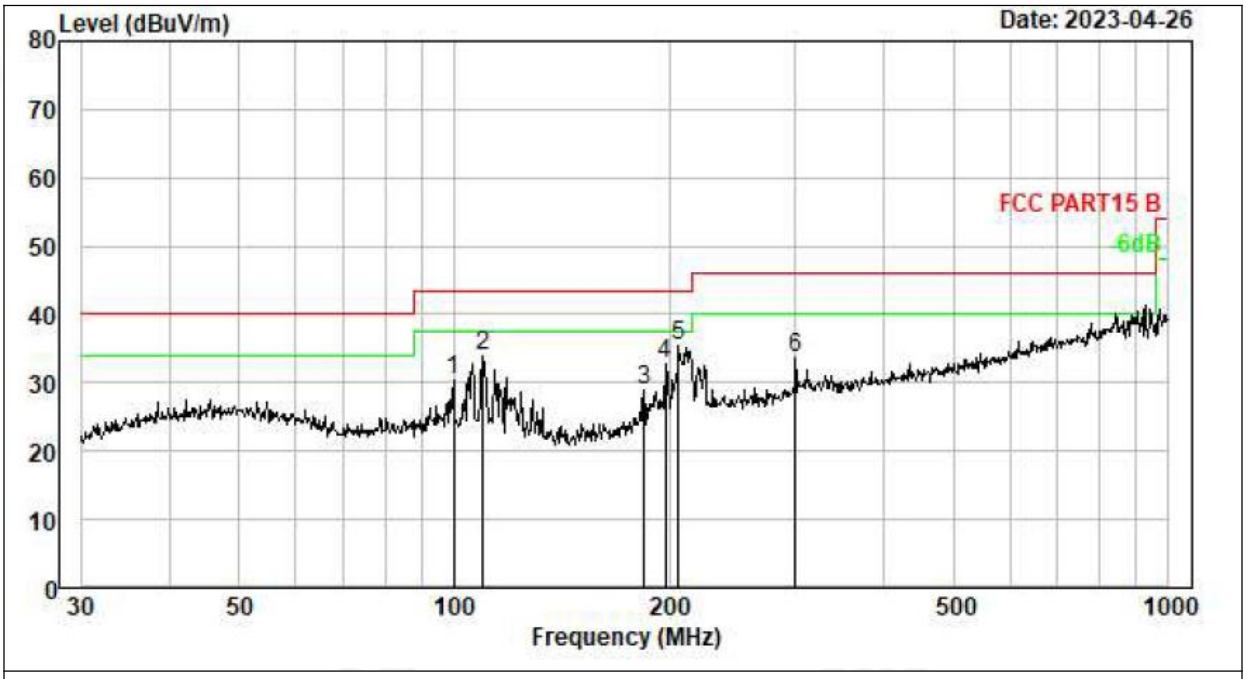
4.2.6 TEST RESULTS

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.

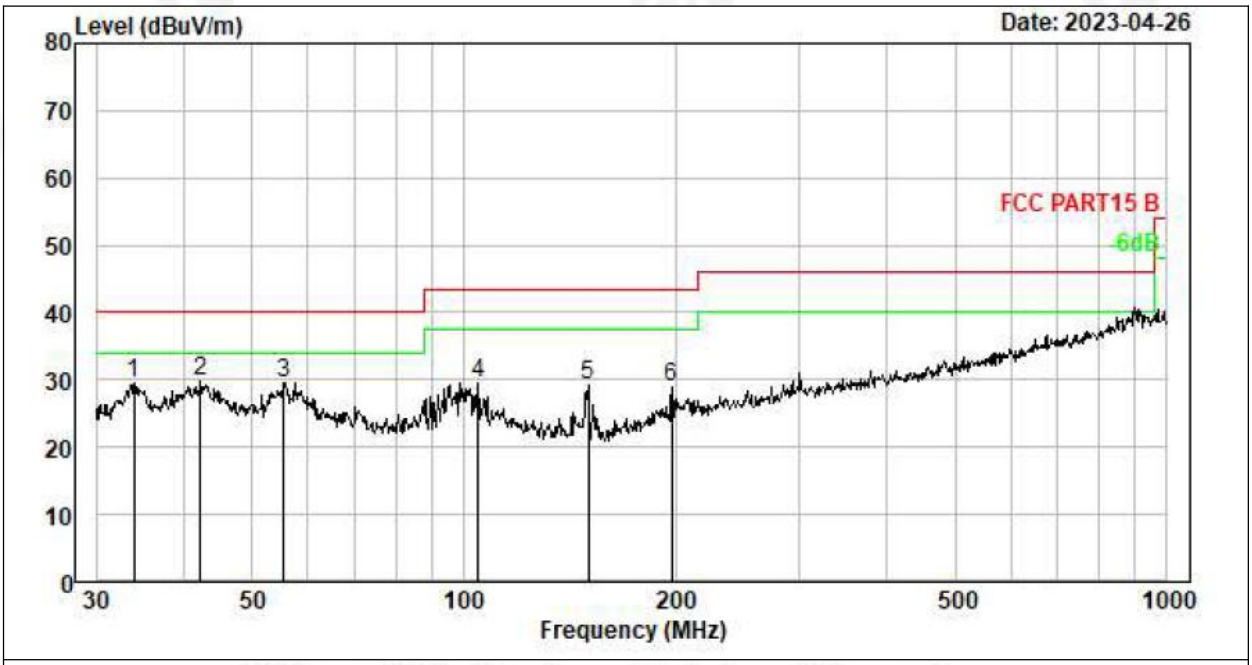
Between 30MHz – 1GHz

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	Emission Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
1	99.878	0.69	11.09	18.71	30.49	43.50	-13.01	QP
2	109.796	0.74	11.20	21.88	33.82	43.50	-9.68	QP
3	184.490	1.02	10.39	17.42	28.83	43.50	-14.67	QP
4	197.893	1.05	11.34	20.47	32.86	43.50	-10.64	QP
5	206.398	1.08	11.63	22.62	35.33	43.50	-8.17	QP
6	300.367	1.28	14.31	18.05	33.64	46.00	-12.36	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	Emission Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
1	33.917	0.29	10.84	18.48	29.61	40.00	-10.39	QP
2	42.154	0.37	12.55	16.92	29.84	40.00	-10.16	QP
3	55.415	0.47	12.14	17.01	29.62	40.00	-10.38	QP
4	104.903	0.72	11.15	17.68	29.55	43.50	-13.95	QP
5	150.538	0.91	8.33	19.94	29.18	43.50	-14.32	QP
6	197.893	1.05	11.34	16.52	28.91	43.50	-14.59	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 mode

1GHz~25GHz

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	49.94	30.55	5.77	24.66	49.82	74.00	-24.18	PK
V	4824.00	40.62	30.55	5.77	24.66	40.50	54.00	-13.50	AV
V	7236.00	48.72	30.33	6.32	24.55	49.26	74.00	-24.74	PK
V	7236.00	41.42	30.33	6.32	24.55	41.96	54.00	-12.04	AV
V	9648.00	47.97	30.85	7.45	24.69	49.26	74.00	-24.74	PK
V	9648.00	41.46	30.85	7.45	24.69	42.75	54.00	-11.25	AV
V	12060.00	49.03	31.02	8.99	25.57	52.57	74.00	-21.43	PK
V	12060.00	39.11	31.02	8.99	25.57	42.65	54.00	-11.35	AV
H	4824.00	50.85	30.55	5.77	24.66	50.73	74.00	-23.27	PK
H	4824.00	40.85	30.55	5.77	24.66	40.73	54.00	-13.27	AV
H	7236.00	49.96	30.33	6.32	24.55	50.50	74.00	-23.50	PK
H	7236.00	41.64	30.33	6.32	24.55	42.18	54.00	-11.82	AV
H	9648.00	50.46	30.85	7.45	24.69	51.75	74.00	-22.25	PK
H	9648.00	41.00	30.85	7.45	24.69	42.29	54.00	-11.71	AV
H	12060.00	50.29	31.02	8.99	25.57	53.83	74.00	-20.17	PK
H	12060.00	39.25	31.02	8.99	25.57	42.79	54.00	-11.21	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	48.32	30.55	5.77	24.66	48.20	74.00	-25.80	PK
V	4874.00	38.90	30.55	5.77	24.66	38.78	54.00	-15.22	AV
V	7311.00	46.61	30.33	6.32	24.55	47.15	74.00	-26.85	PK
V	7311.00	39.64	30.33	6.32	24.55	40.18	54.00	-13.82	AV
V	9748.00	46.61	30.85	7.45	24.69	47.90	74.00	-26.10	PK
V	9748.00	39.53	30.85	7.45	24.69	40.82	54.00	-13.18	AV
V	12185.00	47.42	31.02	8.99	25.57	50.96	74.00	-23.04	PK
V	12185.00	38.27	31.02	8.99	25.57	41.81	54.00	-12.19	AV
H	4874.00	49.21	30.55	5.77	24.66	49.09	74.00	-24.91	PK
H	4874.00	39.57	30.55	5.77	24.66	39.45	54.00	-14.55	AV
H	7311.00	48.70	30.33	6.32	24.55	49.24	74.00	-24.76	PK
H	7311.00	40.24	30.33	6.32	24.55	40.78	54.00	-13.22	AV
H	9748.00	48.93	30.85	7.45	24.69	50.22	74.00	-23.78	PK
H	9748.00	39.59	30.85	7.45	24.69	40.88	54.00	-13.12	AV
H	12185.00	48.65	31.02	8.99	25.57	52.19	74.00	-21.81	PK
H	12185.00	38.10	31.02	8.99	25.57	41.64	54.00	-12.36	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	49.86	30.55	5.77	24.66	49.74	74.00	-24.26	PK
V	4924.00	37.84	30.55	5.77	24.66	37.72	54.00	-16.28	AV
V	7386.00	46.67	30.33	6.32	24.55	47.21	74.00	-26.79	PK
V	7386.00	41.07	30.33	6.32	24.55	41.61	54.00	-12.39	AV
V	9848.00	46.96	30.85	7.45	24.69	48.25	74.00	-25.75	PK
V	9848.00	39.83	30.85	7.45	24.69	41.12	54.00	-12.88	AV
V	12310.00	46.89	31.02	8.99	25.57	50.43	74.00	-23.57	PK
V	12310.00	37.78	31.02	8.99	25.57	41.32	54.00	-12.68	AV
H	4924.00	49.63	30.55	5.77	24.66	49.51	74.00	-24.49	PK
H	4924.00	40.27	30.55	5.77	24.66	40.15	54.00	-13.85	AV
H	7386.00	47.90	30.33	6.32	24.55	48.44	74.00	-25.56	PK
H	7386.00	40.31	30.33	6.32	24.55	40.85	54.00	-13.15	AV
H	9848.00	48.69	30.85	7.45	24.69	49.98	74.00	-24.02	PK
H	9848.00	39.91	30.85	7.45	24.69	41.20	54.00	-12.80	AV
H	12310.00	49.43	31.02	8.99	25.57	52.97	74.00	-21.03	PK
H	12310.00	37.84	31.02	8.99	25.57	41.38	54.00	-12.62	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, RSS-Gen §8.9, RSS-Gen §8.10
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:

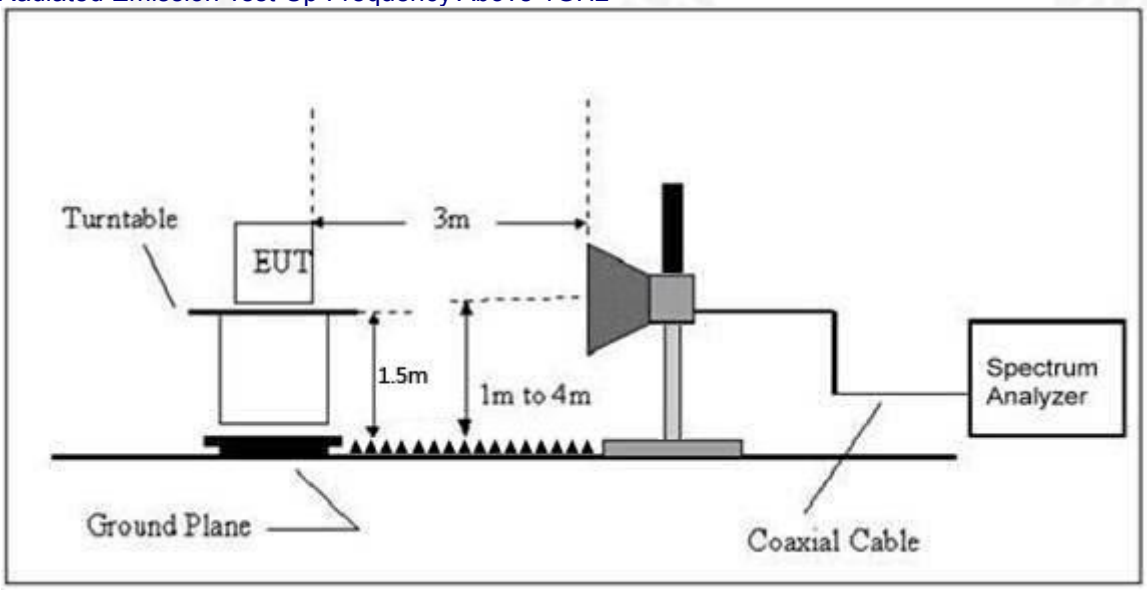
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

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
802.11b	Low Channel 2412MHz									
	H	2390.00	53.47	30.22	4.85	23.98	52.08	74.00	PK	PASS
	H	2390.00	47.10	30.22	4.85	23.98	45.71	54.00	AV	PASS
	H	2400.00	58.40	30.22	4.85	23.98	57.01	74.00	PK	PASS
	H	2400.00	47.61	30.22	4.85	23.98	46.22	54.00	AV	PASS
	V	2390.00	55.14	30.22	4.85	23.98	53.75	74.00	PK	PASS
	V	2390.00	48.13	30.22	4.85	23.98	46.74	54.00	AV	PASS
	V	2400.00	57.14	30.22	4.85	23.98	55.75	74.00	PK	PASS
	V	2400.00	44.45	30.22	4.85	23.98	43.06	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	53.51	30.22	4.85	23.98	52.12	74.00	PK	PASS
	H	2483.50	46.47	30.22	4.85	23.98	45.08	54.00	AV	PASS
	H	2500.00	58.12	30.22	4.85	23.98	56.73	74.00	PK	PASS
	H	2500.00	44.83	30.22	4.85	23.98	43.44	54.00	AV	PASS
	V	2483.50	57.06	30.22	4.85	23.98	55.67	74.00	PK	PASS
	V	2483.50	45.37	30.22	4.85	23.98	43.98	54.00	AV	PASS
	V	2500.00	53.15	30.22	4.85	23.98	51.76	74.00	PK	PASS
	V	2500.00	46.19	30.22	4.85	23.98	44.80	54.00	AV	PASS
802.11g	Low Channel 2412MHz									
	H	2390.00	55.92	30.22	4.85	23.98	54.53	74.00	PK	PASS
	H	2390.00	47.82	30.22	4.85	23.98	46.43	54.00	AV	PASS
	H	2400.00	57.25	30.22	4.85	23.98	55.86	74.00	PK	PASS
	H	2400.00	44.46	30.22	4.85	23.98	43.07	54.00	AV	PASS
	V	2390.00	56.58	30.22	4.85	23.98	55.19	74.00	PK	PASS
	V	2390.00	47.20	30.22	4.85	23.98	45.81	54.00	AV	PASS
	V	2400.00	55.28	30.22	4.85	23.98	53.89	74.00	PK	PASS
	V	2400.00	45.85	30.22	4.85	23.98	44.46	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	51.94	30.22	4.85	23.98	50.55	74.00	PK	PASS
	H	2483.50	44.29	30.22	4.85	23.98	42.90	54.00	AV	PASS
	H	2500.00	57.72	30.22	4.85	23.98	56.33	74.00	PK	PASS
	H	2500.00	43.93	30.22	4.85	23.98	42.54	54.00	AV	PASS
	V	2483.50	53.94	30.22	4.85	23.98	52.55	74.00	PK	PASS
	V	2483.50	48.02	30.22	4.85	23.98	46.63	54.00	AV	PASS
	V	2500.00	52.50	30.22	4.85	23.98	51.11	74.00	PK	PASS
	V	2500.00	46.33	30.22	4.85	23.98	44.94	54.00	AV	PASS
802.11n20	Low Channel 2412MHz									
	H	2390.00	54.49	30.22	4.85	23.98	53.10	74.00	PK	PASS
	H	2390.00	46.96	30.22	4.85	23.98	45.57	54.00	AV	PASS
	H	2400.00	57.18	30.22	4.85	23.98	55.79	74.00	PK	PASS
	H	2400.00	45.14	30.22	4.85	23.98	43.75	54.00	AV	PASS
	V	2390.00	55.00	30.22	4.85	23.98	53.61	74.00	PK	PASS
	V	2390.00	49.09	30.22	4.85	23.98	47.70	54.00	AV	PASS
	V	2400.00	58.94	30.22	4.85	23.98	57.55	74.00	PK	PASS
	V	2400.00	48.32	30.22	4.85	23.98	46.93	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	54.40	30.22	4.85	23.98	53.01	74.00	PK	PASS
	H	2483.50	47.19	30.22	4.85	23.98	45.80	54.00	AV	PASS
	H	2500.00	57.18	30.22	4.85	23.98	55.79	74.00	PK	PASS
	H	2500.00	44.76	30.22	4.85	23.98	43.37	54.00	AV	PASS
	V	2483.50	55.34	30.22	4.85	23.98	53.95	74.00	PK	PASS
	V	2483.50	48.45	30.22	4.85	23.98	47.06	54.00	AV	PASS
	V	2500.00	58.61	30.22	4.85	23.98	57.22	74.00	PK	PASS

	V	2500.00	48.33	30.22	4.85	23.98	46.94	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), RSS-247 §5.2
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 C Section 15.247 (e), RSS-247 §5.2 (b)				
Section	Test Item	Limit	Frequency Range (MHz)	Result
RSS-247 §5.2 (b)	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

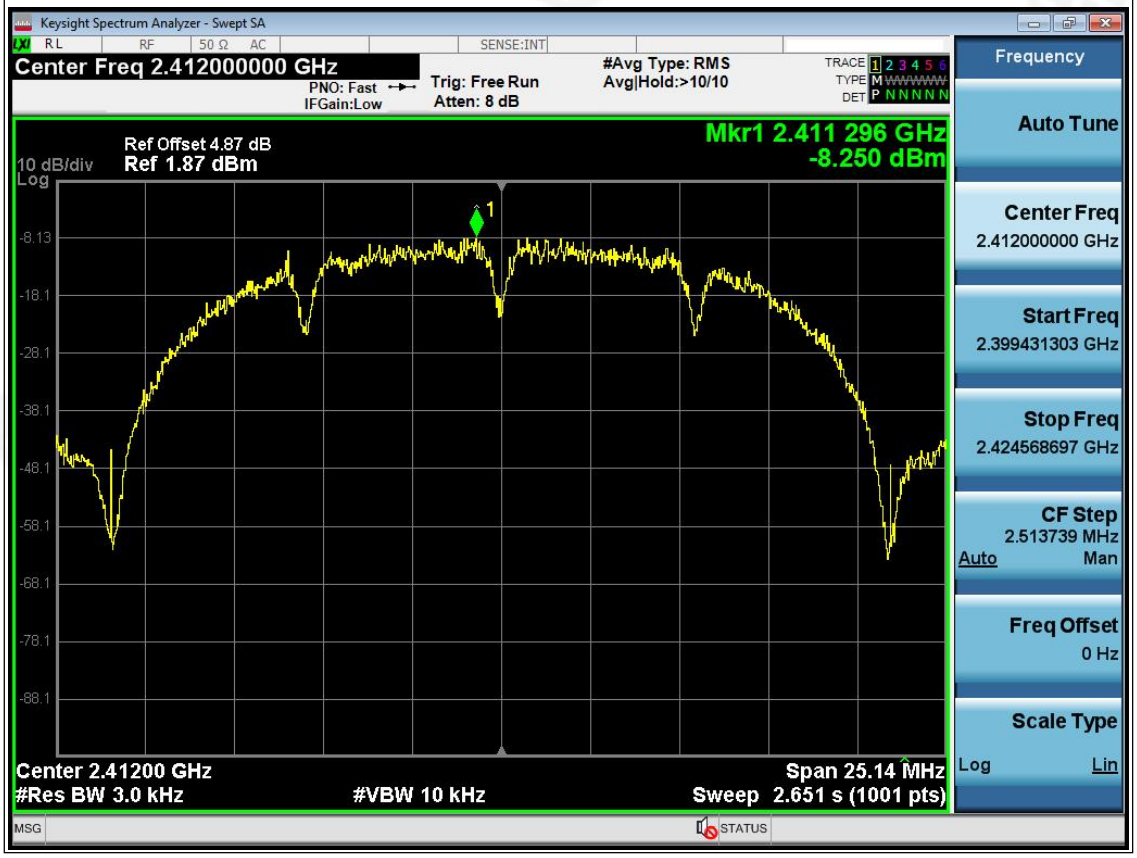
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

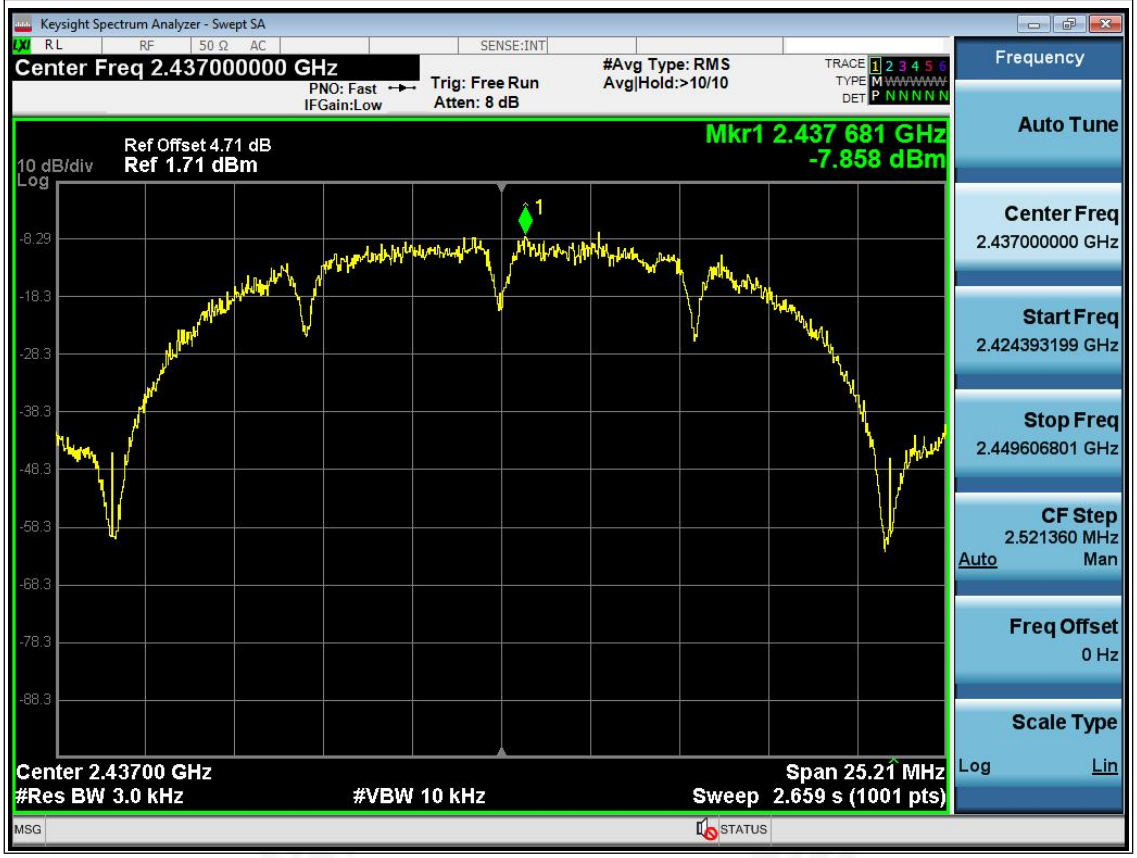
Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX b Mode		

Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-8.250	8	PASS
2437 MHz	-7.858	8	PASS
2462 MHz	-7.140	8	PASS

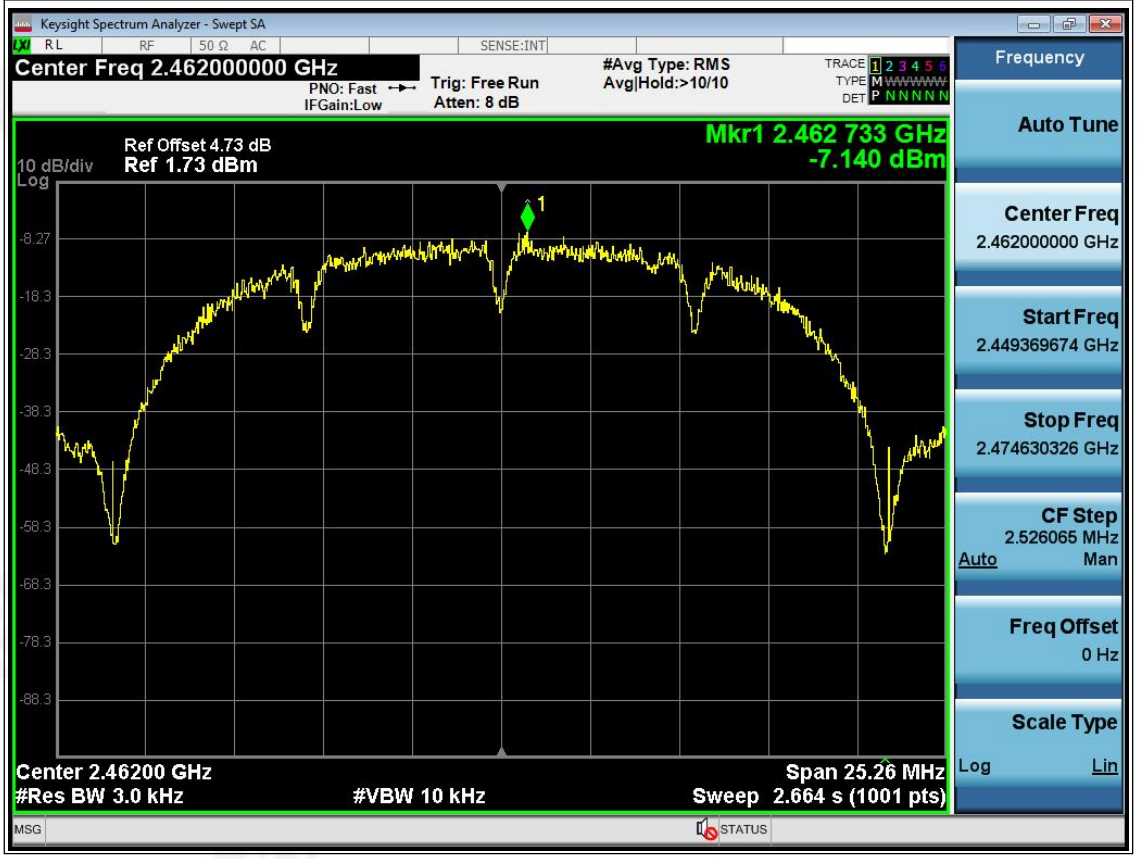
TX CH01



TX CH06



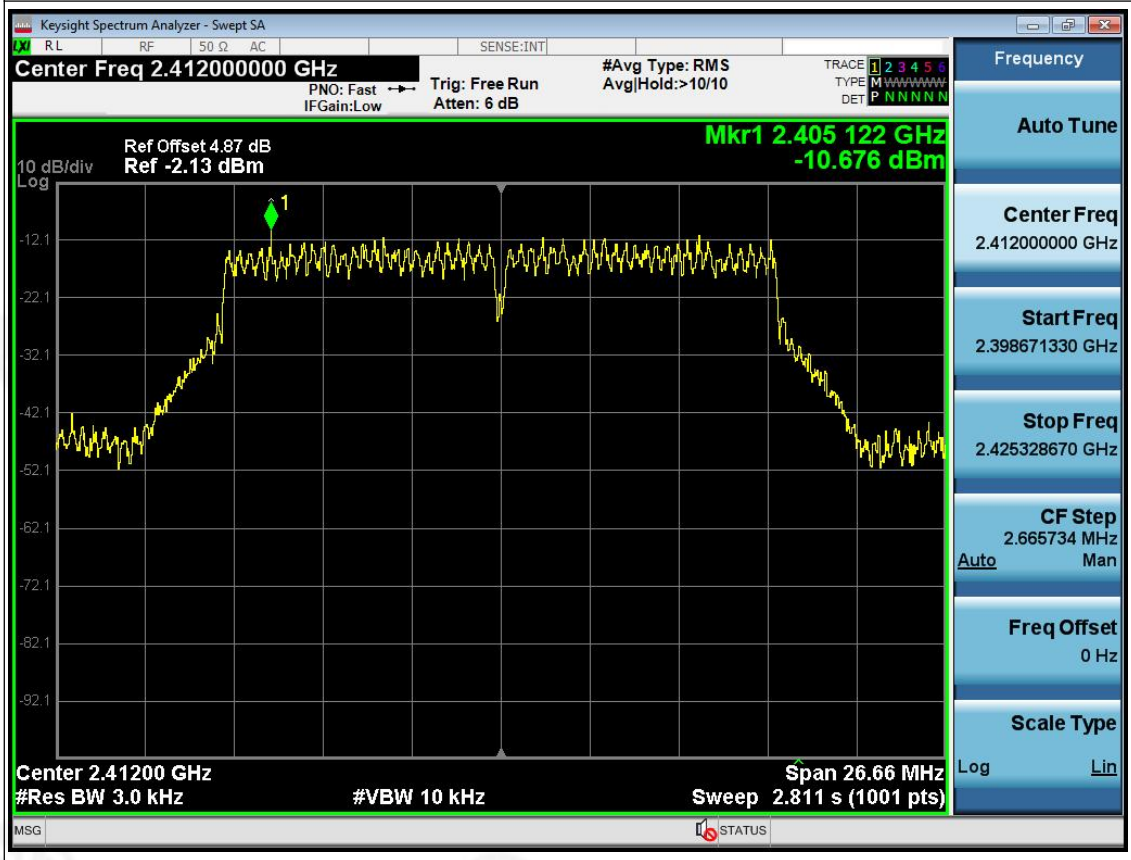
TX CH11



Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX g Mode		

Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-10.676	8	PASS
2437 MHz	-11.205	8	PASS
2462 MHz	-10.936	8	PASS

TX CH01



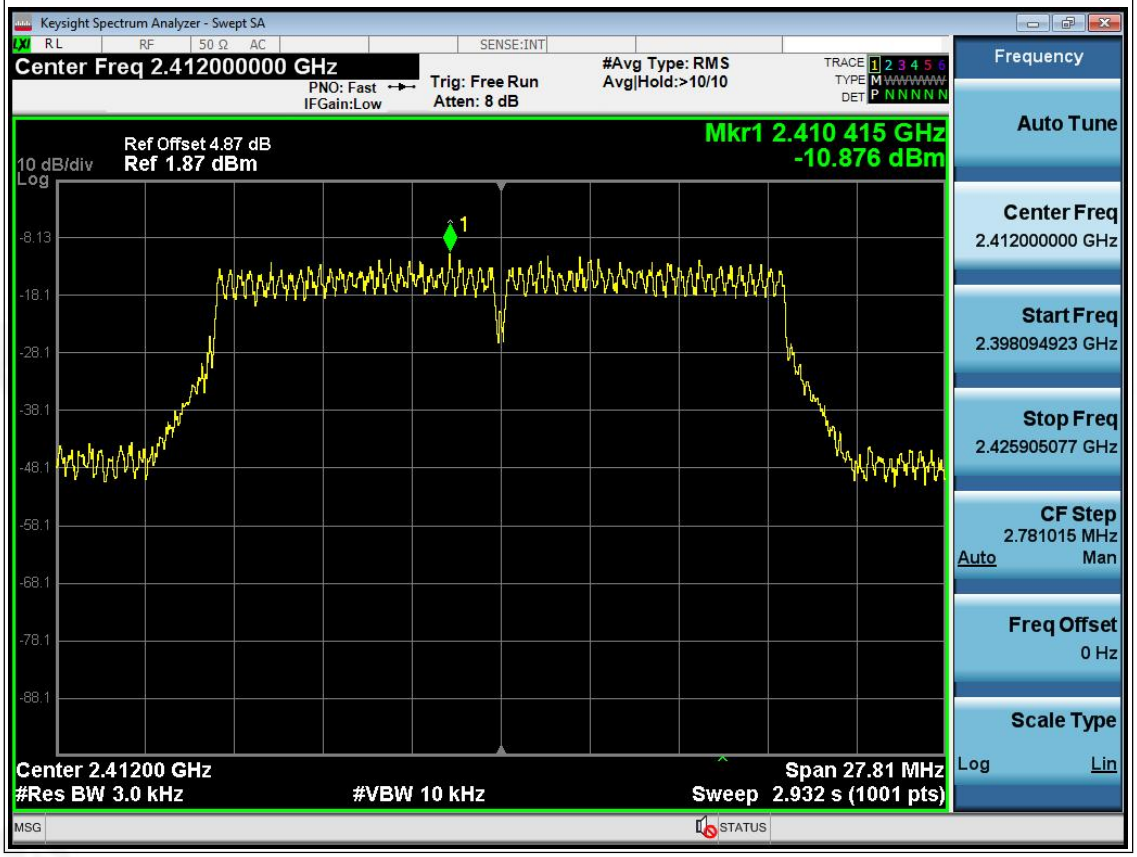
TX CH06

TX CH11

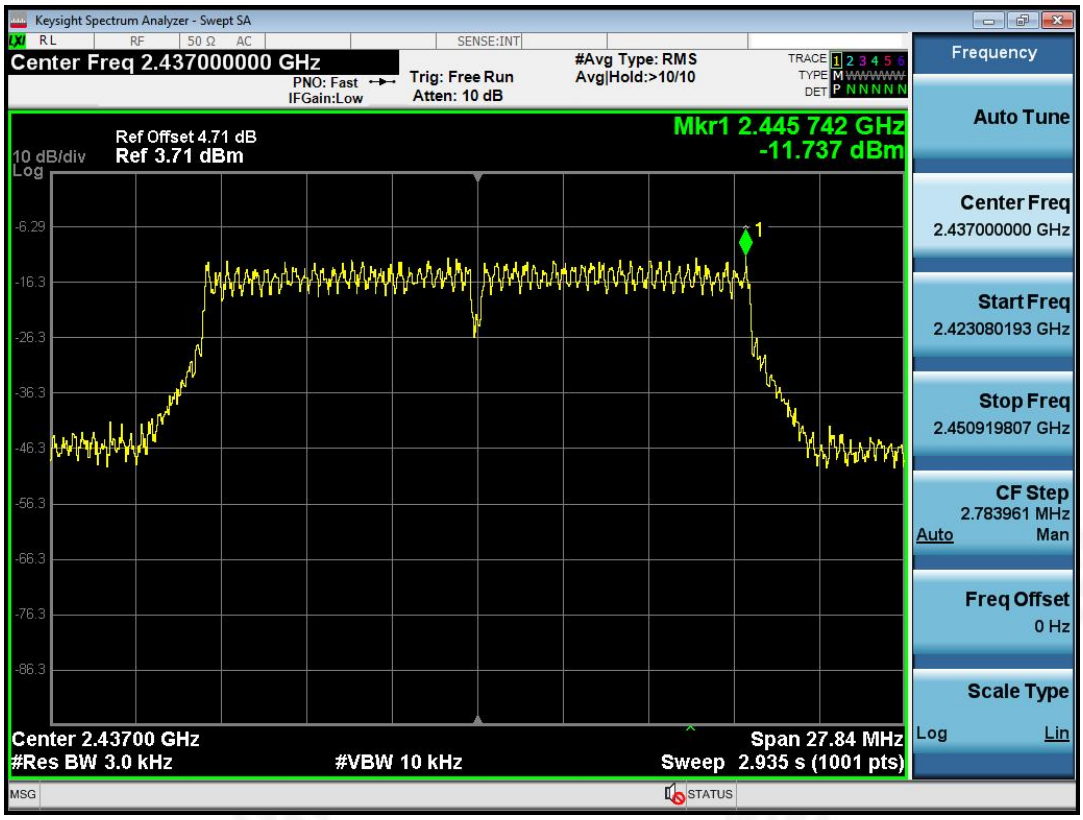
Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX n Mode(20M)		

Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-10.876	8	PASS
2437 MHz	-11.737	8	PASS
2462 MHz	-10.878	8	PASS

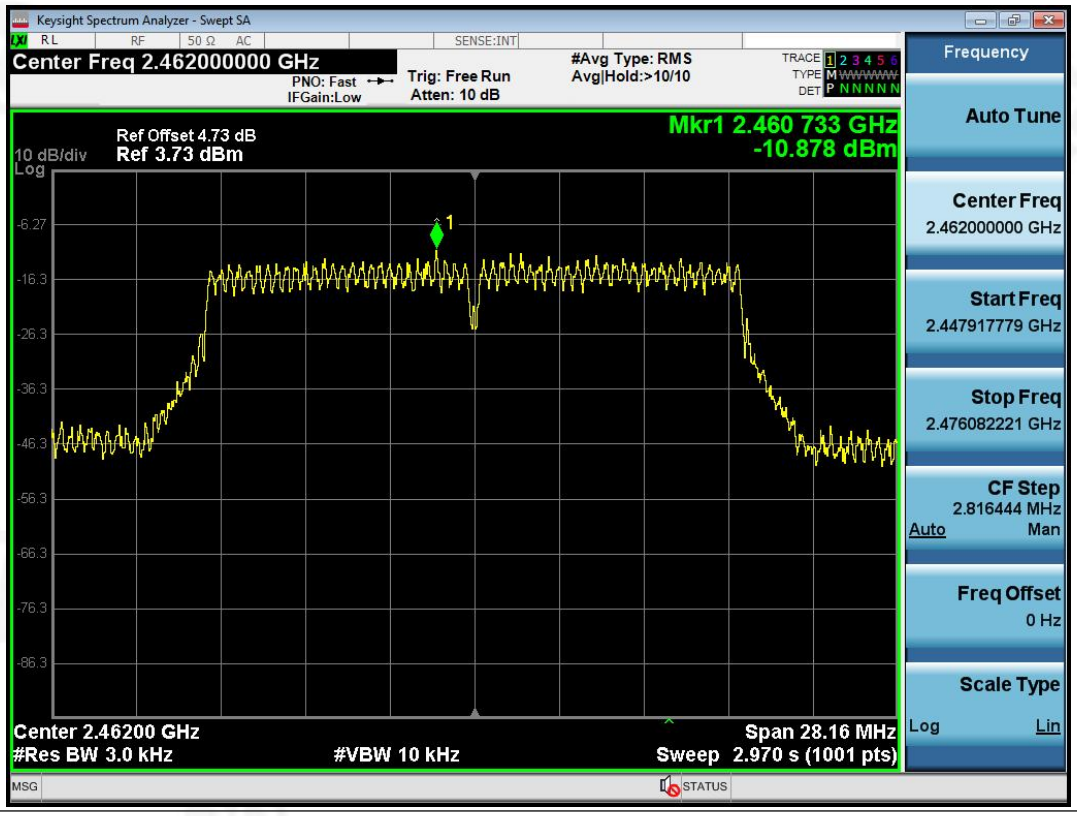
TX CH01



TX CH06



TX CH11



7. CHANNEL BANDWIDTH& 99% OCCUPY BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2),RSS-GEN §6.7& RSS-247 §5.2
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 C Section 15.247 (a)(2), RSS-247 §5.2(a)				
Section	Test Item	Limit	Frequency Range (MHz)	Result
RSS-247 §5.2(a)	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 :	AC 120V/60Hz
Test Mode :	TX b Mode		

Test CH	-6dB Occupy Bandwidth (MHz)					
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	Limit (KHz)	Result
Lowest	13.09	16.37	17.61	/	>500	Pass
Middle	13.07	16.40	17.61	/		
Highest	13.08	16.37	17.60	/		

Test CH	99% Occupy Bandwidth (MHz)					
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	Limit (KHz)	Result
Lowest	16.758	17.772	18.540	/	/	Pass
Middle	16.809	17.927	18.560	/		
Highest	16.840	17.914	18.776	/		

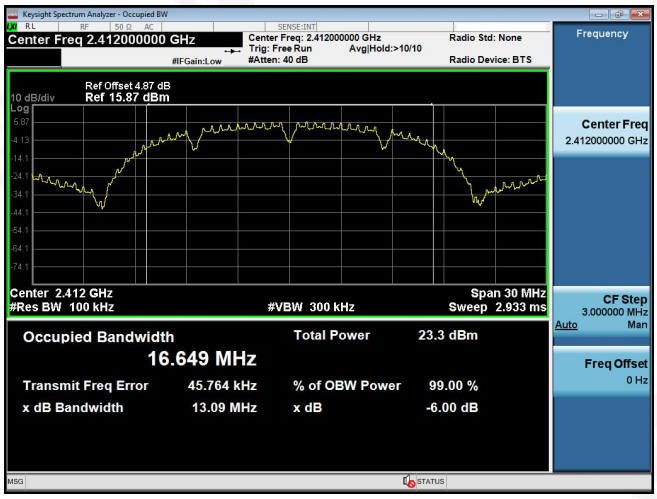
Test plot as follows:

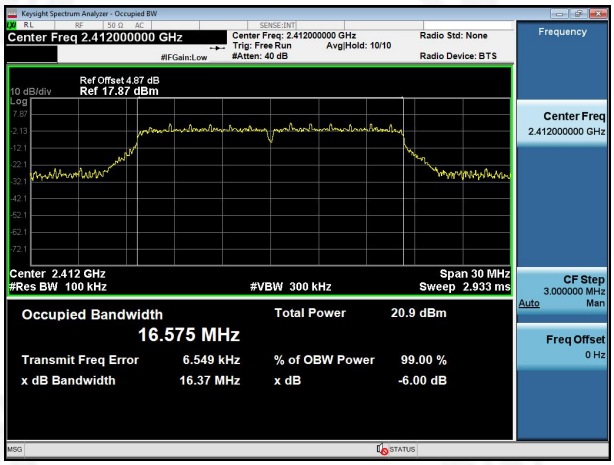
-6dB Occupy Bandwidth

802.11b

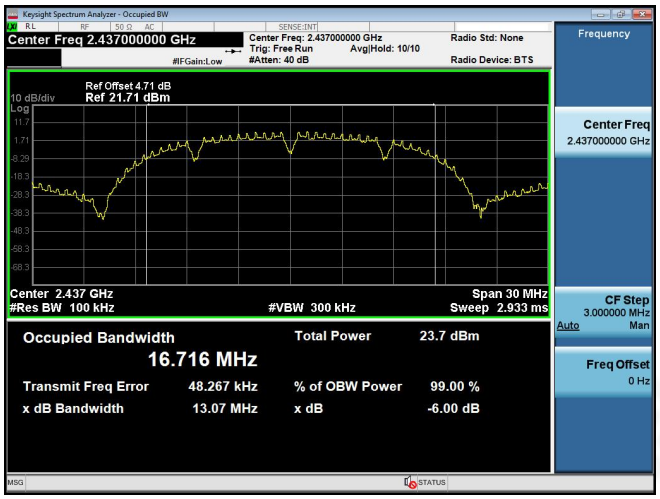
802.11g

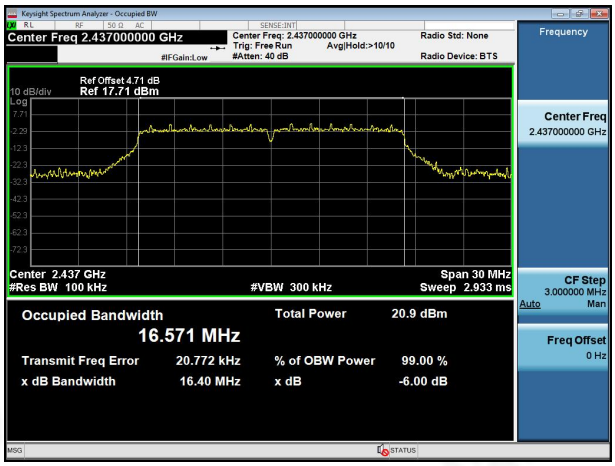
Lowest channel



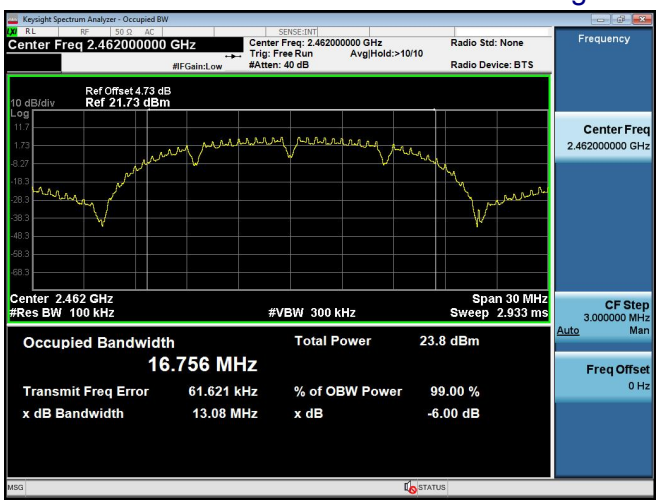


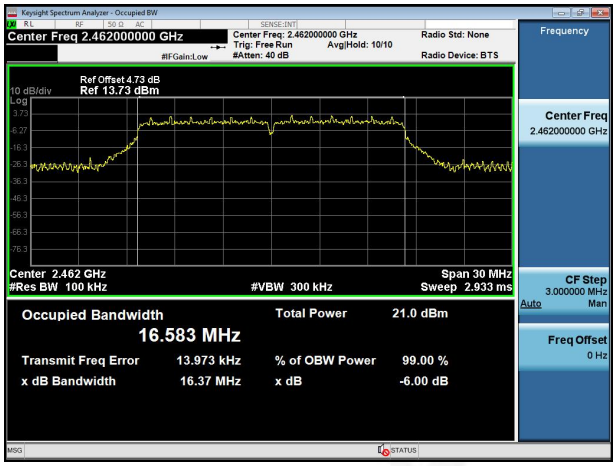
Middle channel





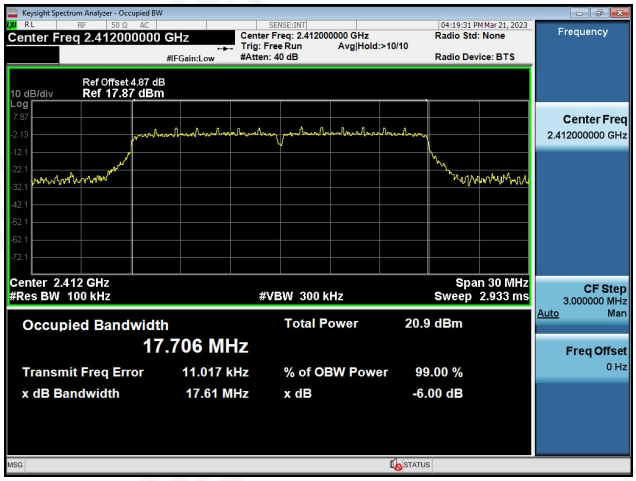
Highest channel



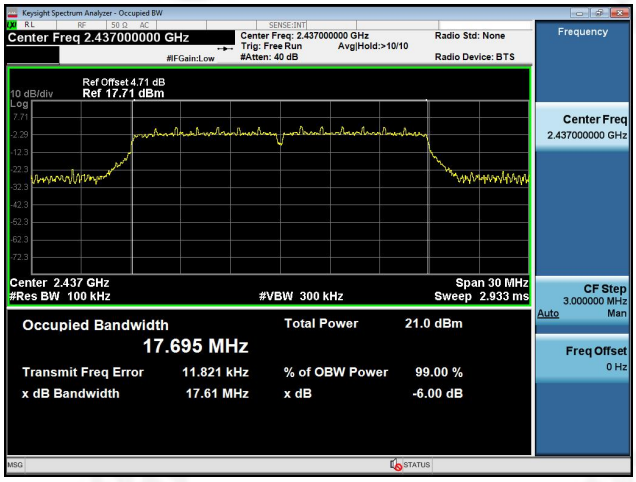


802.11n20

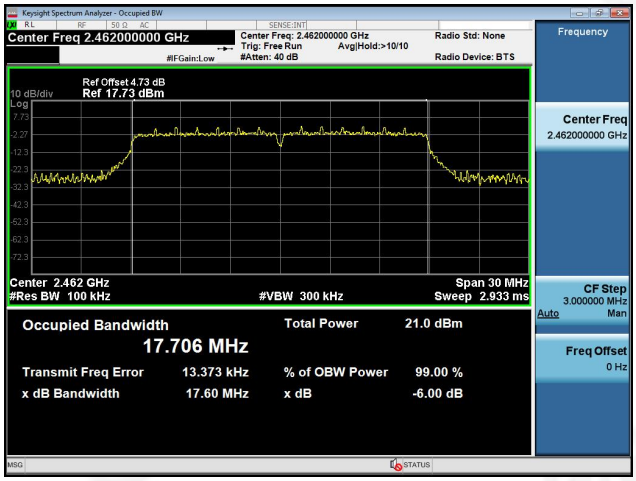
Lowest channel



Middle channel



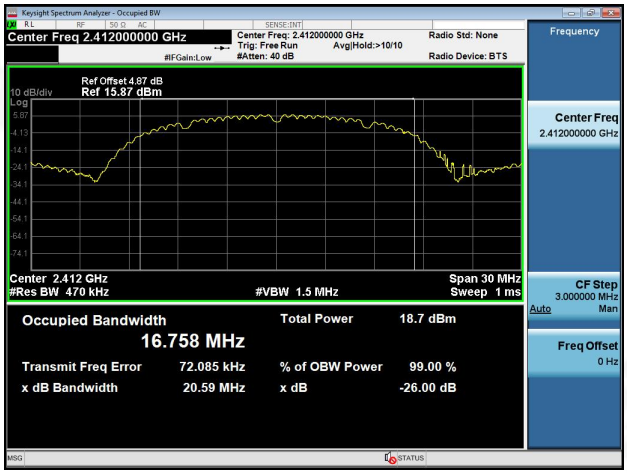
Highest channel



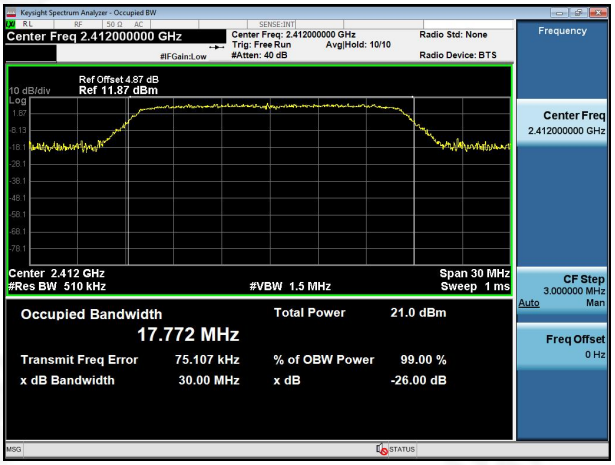
99% Occupy Bandwidth

802.11b

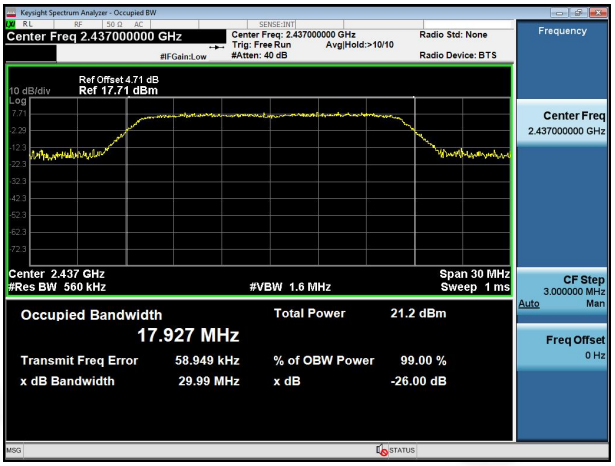
Lowest channel



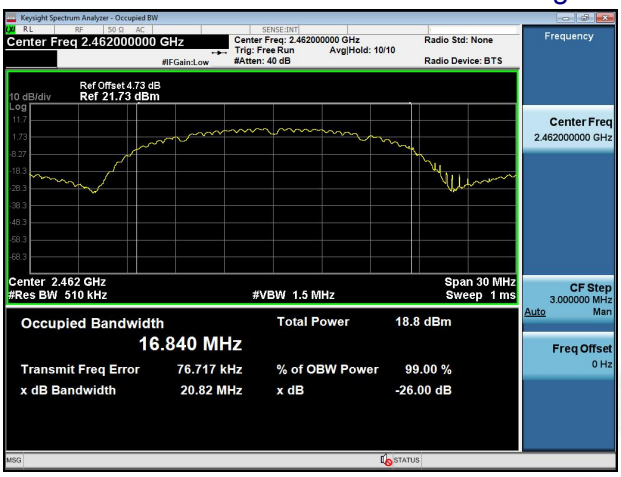
802.11g

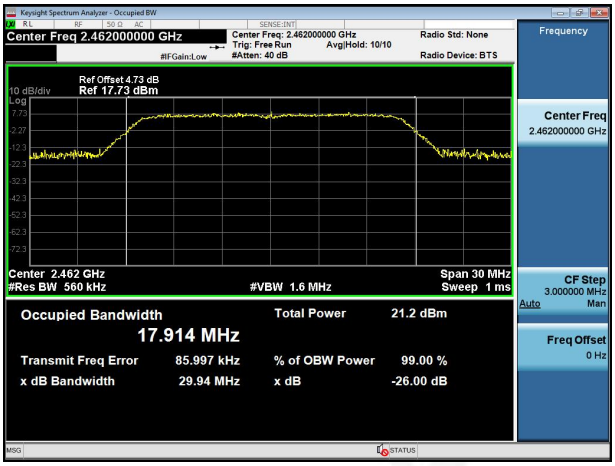


Middle channel



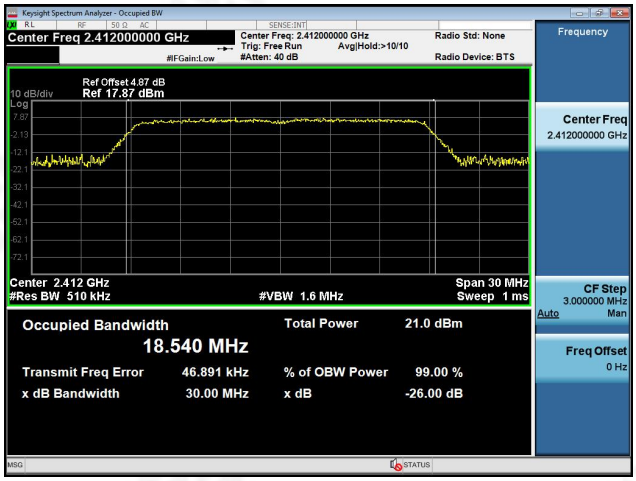
Highest channel



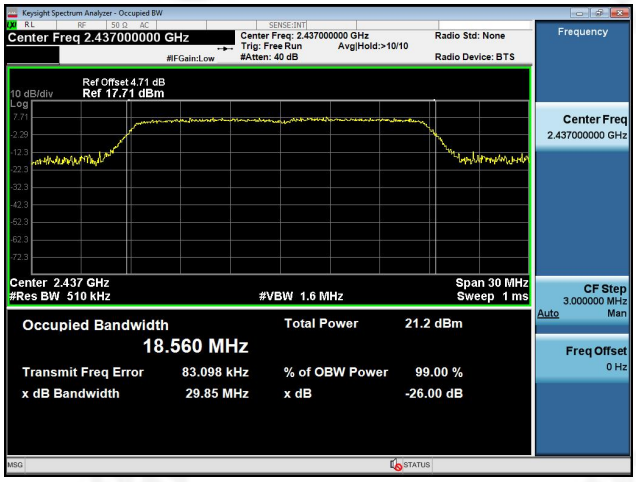


802.11n20

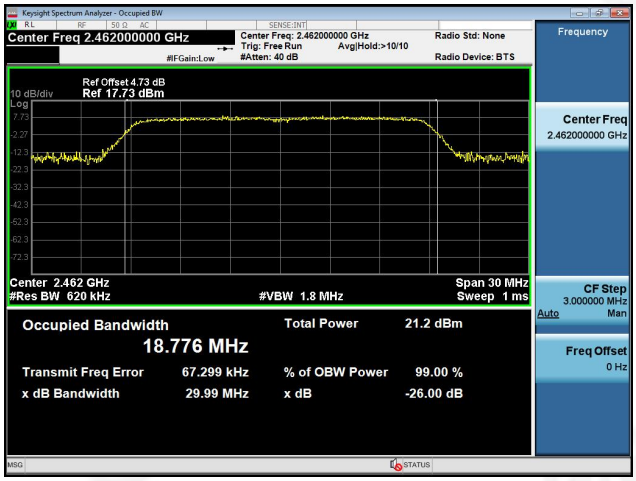
Lowest channel



Middle channel



Highest channel



8.PEAK OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3), RSS-247 § 5.4
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

8.1 APPLIED PROCEDURES/LIMIT

RSS-247§5.4(d)				
Section	Test Item	Limit	Frequency Range (MHz)	Result
RSS-247§5.4(d)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

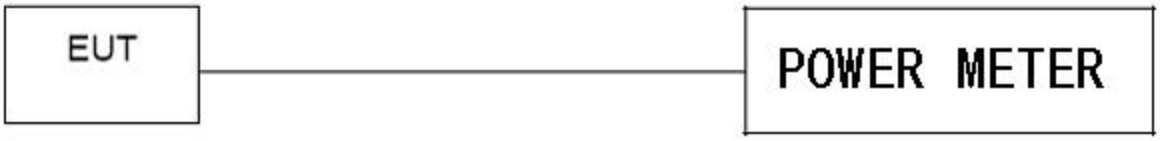
8.2 TEST PROCEDURE

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 :	AC 120V/60Hz

Test Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Total power (dBm)	Limit (dBm)
TX 802.11b Mode				
CH01	2412	18.94	-	30.00
CH06	2437	19.23	-	30.00
CH11	2462	19.22	-	30.00
TX 802.11g Mode				
CH01	2412	17.81	-	30.00
CH06	2437	17.89	-	30.00
CH11	2462	17.93	-	30.00
TX 802.11n(HT20) Mode				
CH01	2412	17.72	-	30.00
CH06	2437	17.76	-	30.00
CH11	2462	17.78	-	30.00
TX 802.11n(HT40) Mode				
CH03	2422	/	-	30.00
CH06	2437	/	-	30.00
CH09	2452	/	-	30.00

Note:

1. For power test the duty cycle is 100% in continous transmitting mode;
2. TX means Transmit, RX means Receive.