



FCC TEST REPORT

FCC ID:2BFSQ-WL310

Report Number.....: ZKT-240415L3773-1

Date of Test..... Mar. 23, 2024 to Apr. 19, 2024

Date of issue.....: Apr. 19, 2024

Total number of pages..... 112

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: Shenzhen Weizhi Internet Technology Co.,Ltd

Address: 607B, Building B, Jiading Industrial Zone, Langkou Community, Dalang Street, Longhua District, Shenzhen City, China

Manufacturer's name: Shenzhen Weizhi Internet Technology Co.,Ltd

Address: 607B, Building B, Jiading Industrial Zone, Langkou Community, Dalang Street, Longhua District, Shenzhen City, China

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-111_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.....: wifi router

Trademark: N/A

Model/Type reference.....: Refer to Section 3.1

Ratings.....: DC 12V from adapter



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

ReportNo.	Version	Description	Approved
ZKT-240415L3773-1	Rev.01	Initial issue of report	Apr. 19, 2024



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C KDB 558074 D01			
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&	PASS	
FCC part 15.247 (e)	Power Spectral Density	PASS	
FCC part 15.247(d)	Band Edge	PASS	
FCC part 15.247(d)	Conducted Spurious Emission	PASS	
FCC part 15.205/15.209	Spurious Emission	PASS	

NOTE:

- (1) " N/A" denotes test is not applicable in this Test Report
- (2) KDB 662911 D01 Multiple Transmitter Output v02r01



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

2.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	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°C



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	wifi router
Model No.:	WL211, WL212, WL213, WL214, WL215, WL216, WL217, WL218, WL219, WL231, WL281, WL282, WL283, WL284, WL285, WL286, WL287, WL288, WL289, WL300, WL301, WL302, WL303, WL304, WL305, WL306, WL307, WL308, WL309, WL310, WL316, WL317, WL318, WL319, WR1200S, WR1800K, WR3000K, WR200, ZW100, XD1800K(M), MS1200K(M), MS1800K(M), 5G-CPE1801K, PW100, X40, U9, M9
Model Different.:	Only the model names are different.(Main test model: WL310)
Serial No.:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample(s) Status:	Engineer sample
Channel numbers:	802.11b/802.11g /802.11n(HT20):11 802.11n(HT40):9
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum(DSSS) 802.11g/802.11n(H20)/802.11n(H40) Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	External detachable antenna
Antenna gain:	ANT 0: 5.28dBi ANT 1: 5.28dBi
Power supply:	DC 12V from adapter
Adapter:	Input:100-240V~ 50/60Hz 0.8A max Output:12V---2.0A

Operation Frequency each of channel							
Channel	Frequency	Chann el	Frequency	Chann el	Frequency	Chann el	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)	802.11n(HT40)
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 dutycycle >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(HT40)
Data rate	1Mbps	6Mbps	6.5Mbps	13.5Mbps

Test Software	WIFI 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
/	/	/	/	/	/



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.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY55370835	A.17.05	Nov. 02, 2023	Nov. 01, 2024
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Nov. 02, 2023	Nov. 01, 2024
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Nov. 02, 2023	Nov. 01, 2024
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	N/A	Nov. 13, 2023	Nov. 12, 2024
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Nov. 13, 2023	Nov. 12, 2024
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Nov. 13, 2023	Nov. 12, 2024
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Nov. 16, 2023	Nov. 15, 2024
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Nov. 02, 2023	Nov. 01, 2024
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Nov. 02, 2023	Nov. 01, 2024
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Nov. 02, 2023	Nov. 01, 2024
11	Test Cable	N/A	R-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
12	Test Cable	N/A	R-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
13	Test Cable	N/A	R-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
14	Test Cable	N/A	RF-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
15	Test Cable	N/A	RF-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
16	Test Cable	N/A	RF-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
17	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Nov. 02, 2023	Nov. 01, 2024
18	Signal Generator	Agilent	N5182A	N/A	A.01.87	Nov. 02, 2023	Nov. 01, 2024
19	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	N/A	Nov. 16, 2023	Nov. 15, 2024
20	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Nov. 02, 2023	Nov. 01, 2024
21	MWRF Power Meter Test system	MW	MW100-RF CB	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
22	D.C. Power Supply	LongWei	TPR-6405D	N/A	N/A	\	\
23	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
24	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\
25	Turntable	MF	MF-7802BS	N/A	N/A	\	\
26	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\



Conducted emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Nov. 14, 2023	Nov. 13, 2024
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	C-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	C-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	C-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Nov. 02, 2023	Nov. 01, 2024
7	Triple-Loop Antenna	N/A	RF300	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Nov. 07, 2023	Nov. 06, 2024
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\



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

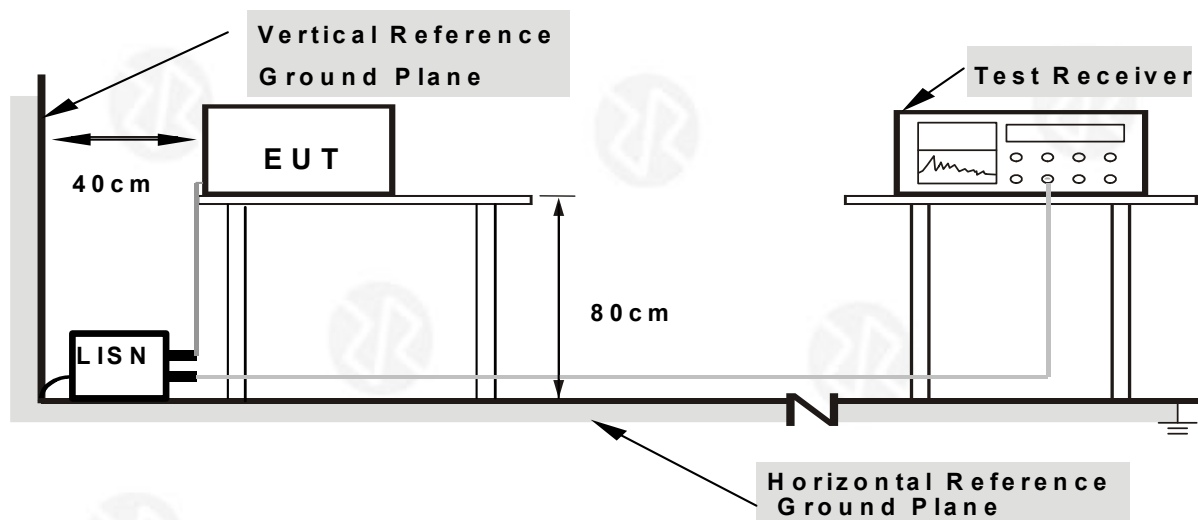
- The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation



4.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

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

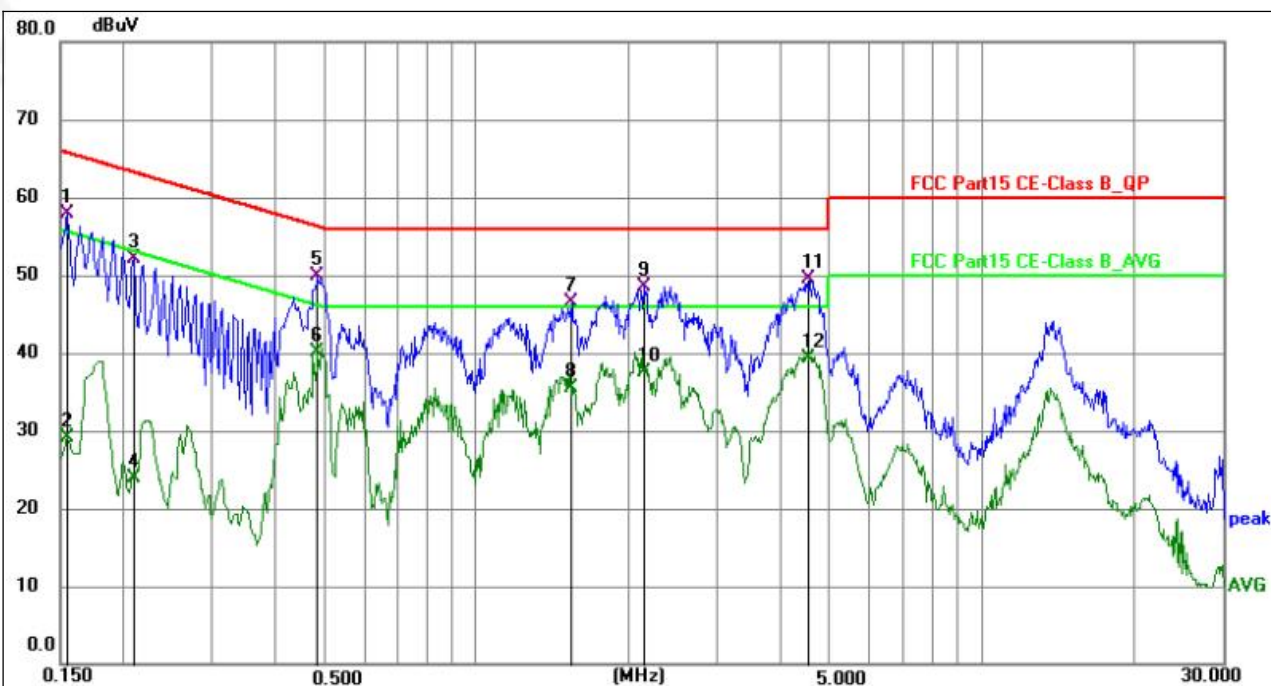
We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULTS PASS



4.1.6 Test Result

Temperature :	26℃	Relative Humidity:	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz		802.11b 2412MHz TX (Worst case ant 0)



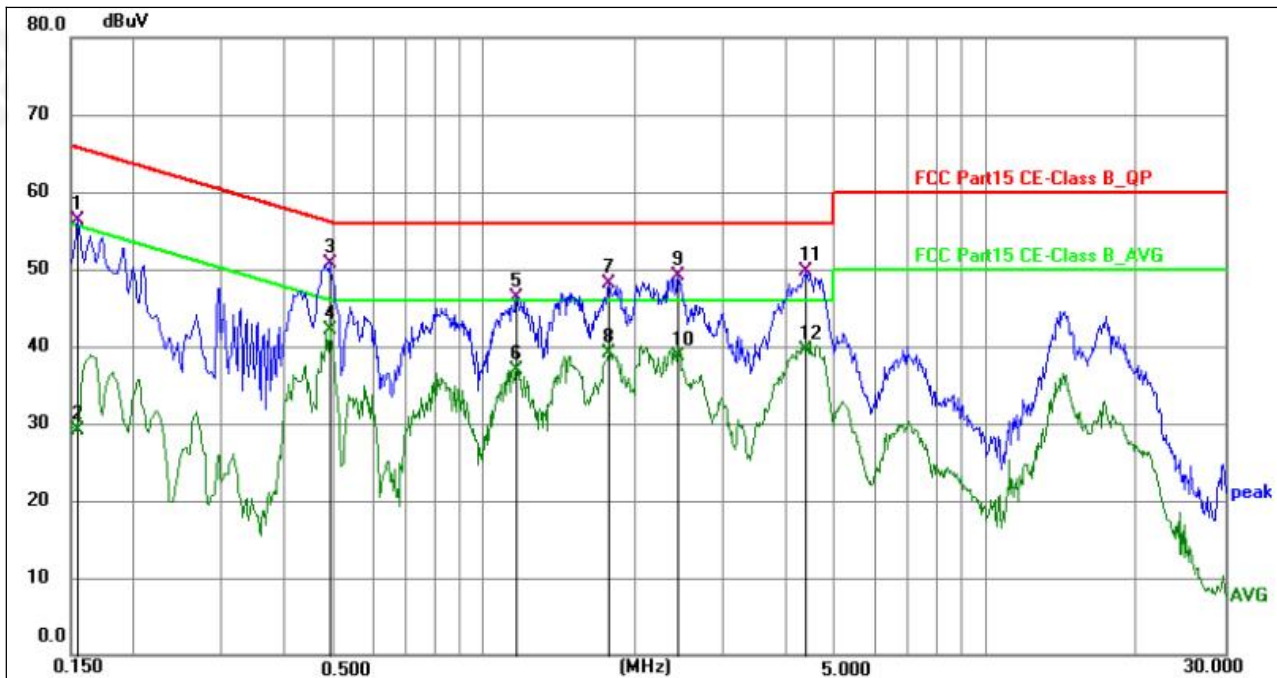
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	48.33	9.53	57.86	65.76	-7.90	QP	P	
2	0.1544	19.61	9.53	29.14	55.76	-26.62	AVG	P	
3	0.2084	42.42	9.71	52.13	63.27	-11.14	QP	P	
4	0.2084	14.29	9.71	24.00	53.27	-29.27	AVG	P	
5	0.4828	40.23	9.62	49.85	56.29	-6.44	QP	P	
6 *	0.4828	30.39	9.62	40.01	46.29	-6.28	AVG	P	
7	1.5494	36.81	9.63	46.44	56.00	-9.56	QP	P	
8	1.5494	25.93	9.63	35.56	46.00	-10.44	AVG	P	
9	2.1524	38.86	9.70	48.56	56.00	-7.44	QP	P	
10	2.1524	27.88	9.70	37.58	46.00	-8.42	AVG	P	
11	4.5734	39.97	9.53	49.50	56.00	-6.50	QP	P	
12	4.5734	29.79	9.53	39.32	46.00	-6.68	AVG	P	

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor



Temperature :	26°C	Relative Humidity:	54%
Pressure :	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz		802.11b 2412MHz TX (Worst case ant 0)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	46.68	9.53	56.21	65.76	-9.55	QP	P	
2	0.1544	19.54	9.53	29.07	55.76	-26.69	AVG	P	
3	0.4919	41.06	9.61	50.67	56.14	-5.47	QP	P	
4 *	0.4919	32.42	9.61	42.03	46.14	-4.11	AVG	P	
5	1.1625	36.72	9.55	46.27	56.00	-9.73	QP	P	
6	1.1625	27.29	9.55	36.84	46.00	-9.16	AVG	P	
7	1.7744	38.47	9.67	48.14	56.00	-7.86	QP	P	
8	1.7744	29.50	9.67	39.17	46.00	-6.83	AVG	P	
9	2.4359	39.50	9.68	49.18	56.00	-6.82	QP	P	
10	2.4359	28.94	9.68	38.62	46.00	-7.38	AVG	P	
11	4.4069	40.26	9.53	49.79	56.00	-6.21	QP	P	
12	4.4069	30.07	9.53	39.60	46.00	-6.40	AVG	P	

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor



4.2 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-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of variable-height antenna tower.



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

Above 1GHz test procedure as below:

- g. Different from above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change from 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:

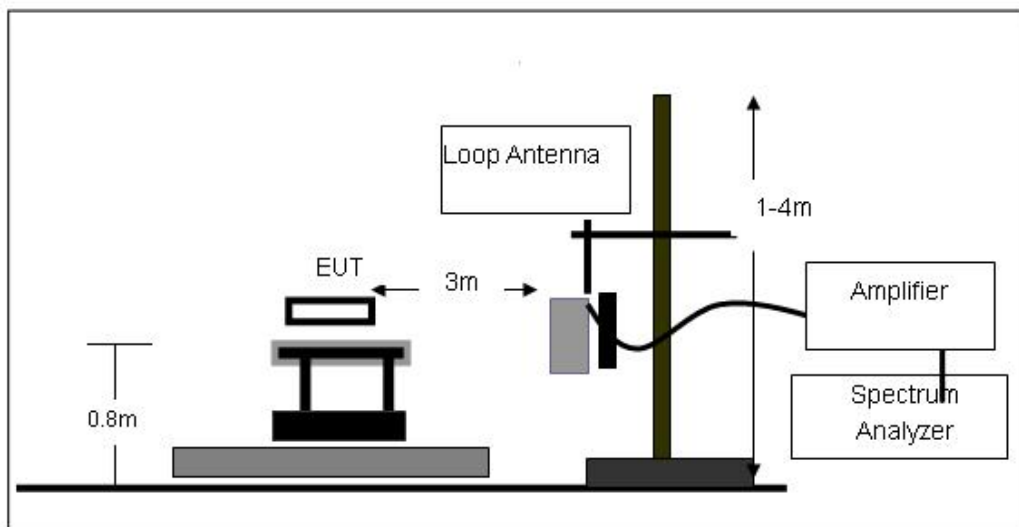
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

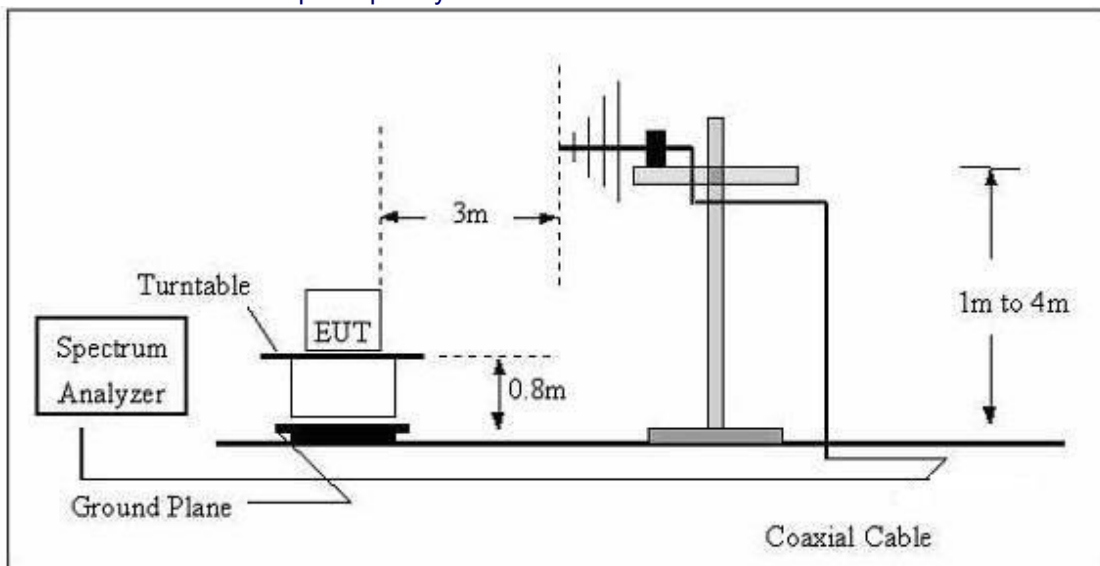
4.2.4 TEST SETUP

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

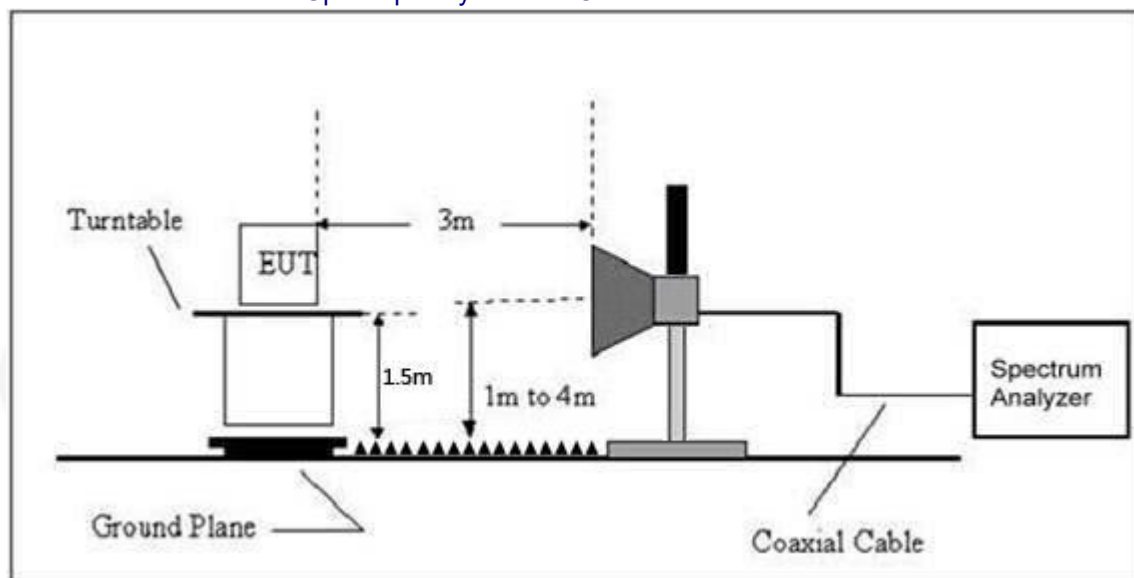




(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(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

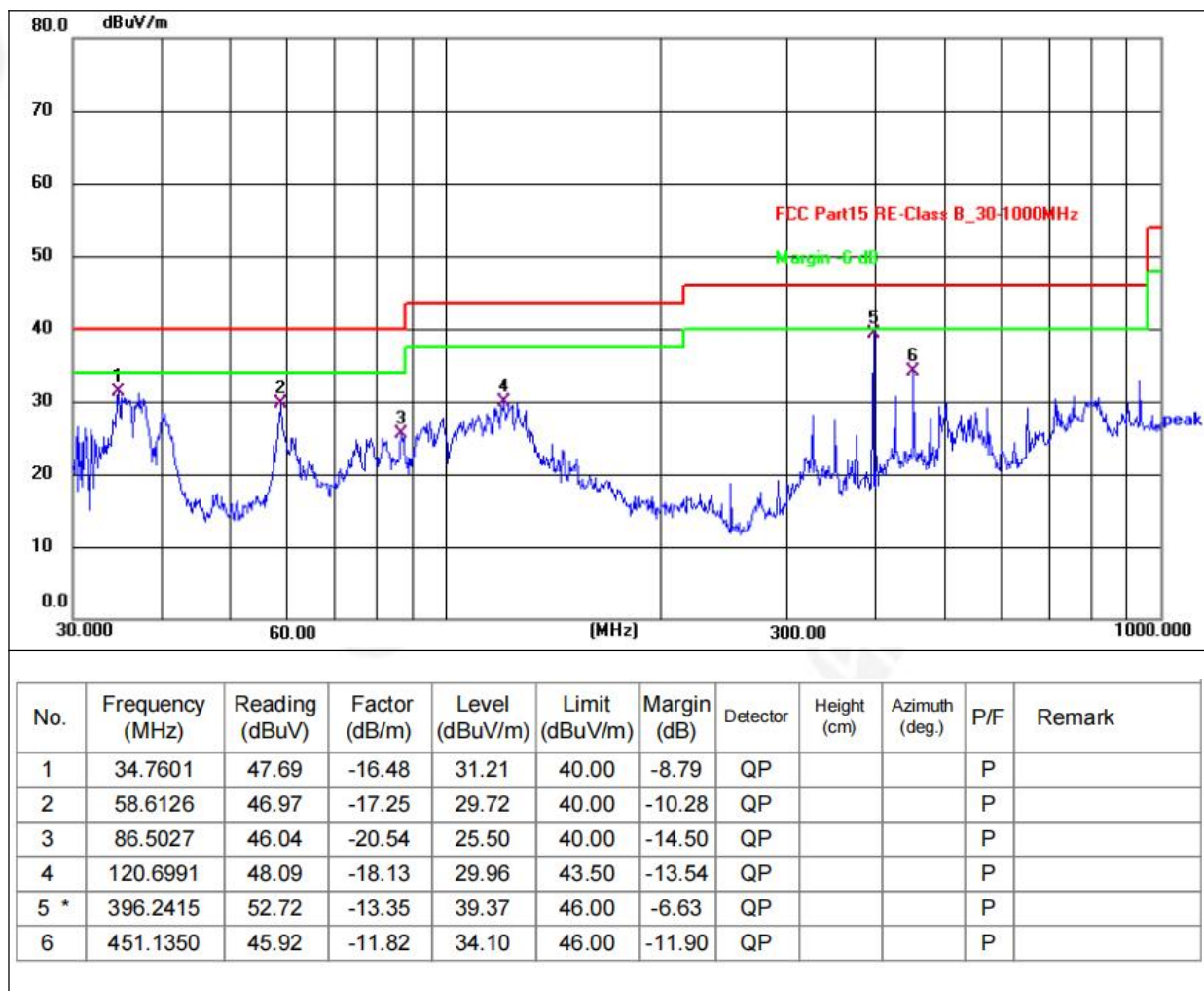
Between 9KHz – 30MHz

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.



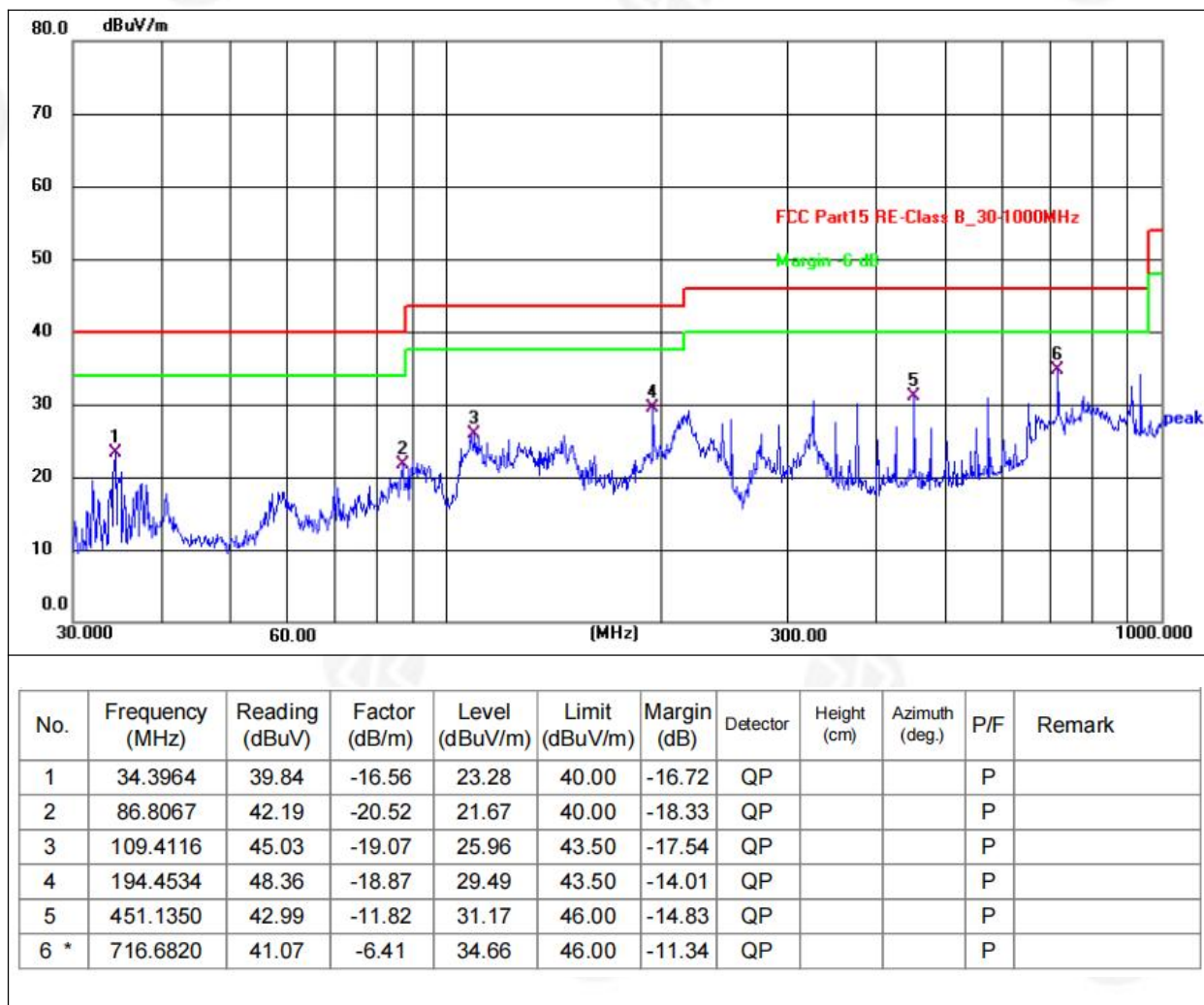
Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)





Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)



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
- Note:The 802.11b/g ANT0 / 1 is tested, and only the worst mode is reflected in the report



1GHz~25GHz

802.11b ANT 0

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:2412MHz									
V	4824.00	50.68	30.55	5.77	24.66	52.01	74.00	-21.99	Pk
V	4824.00	43.59	30.55	5.77	24.66	43.47	54.00	-10.53	AV
V	7236.00	53.35	30.33	6.32	24.55	53.89	74.00	-20.11	Pk
V	7236.00	43.06	30.33	6.32	24.55	43.60	54.00	-10.40	AV
V	9648.00	50.68	30.85	7.45	24.69	51.97	74.00	-22.03	Pk
V	9648.00	43.28	30.85	7.45	24.69	44.57	54.00	-9.43	AV
V	12060.00	54.12	31.02	8.99	25.57	57.66	74.00	-16.34	Pk
V	12060.00	43.47	31.02	8.99	25.57	47.01	54.00	-6.99	AV
H	4824.00	53.18	30.55	5.77	24.66	53.06	74.00	-20.94	Pk
H	4824.00	43.70	30.55	5.77	24.66	43.58	54.00	-10.42	AV
H	7236.00	51.94	30.33	6.32	24.55	52.48	74.00	-21.52	Pk
H	7236.00	43.29	30.33	6.32	24.55	43.83	54.00	-10.17	AV
H	9648.00	52.21	30.85	7.45	24.69	53.50	74.00	-20.50	Pk
H	9648.00	43.05	30.85	7.45	24.69	44.34	54.00	-9.66	AV
H	12060.00	54.85	31.02	8.99	25.57	58.39	74.00	-15.61	Pk
H	12060.00	43.89	31.02	8.99	25.57	47.43	54.00	-6.57	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:2437MHz									
V	4874.00	52.56	30.55	5.77	24.66	52.44	74.00	-21.56	Pk
V	4874.00	43.12	30.55	5.77	24.66	43.00	54.00	-11.00	AV
V	7311.00	52.27	30.33	6.32	24.55	52.81	74.00	-21.19	Pk
V	7311.00	43.60	30.33	6.32	24.55	44.14	54.00	-9.86	AV
V	9748.00	50.48	30.85	7.45	24.69	51.77	74.00	-22.23	Pk
V	9748.00	43.65	30.85	7.45	24.69	44.94	54.00	-9.06	AV
V	12185.00	53.10	31.02	8.99	25.57	56.64	74.00	-17.36	Pk
V	12185.00	43.73	31.02	8.99	25.57	47.27	54.00	-6.73	AV
H	4874.00	53.03	30.55	5.77	24.66	52.91	74.00	-21.09	Pk
H	4874.00	43.02	30.55	5.77	24.66	42.90	54.00	-11.10	AV
H	7311.00	53.40	30.33	6.32	24.55	53.94	74.00	-20.06	Pk
H	7311.00	43.94	30.33	6.32	24.55	44.48	54.00	-9.52	AV
H	9748.00	50.77	30.85	7.45	24.69	52.06	74.00	-21.94	Pk
H	9748.00	43.54	30.85	7.45	24.69	44.83	54.00	-9.17	AV
H	12185.00	50.77	31.02	8.99	25.57	54.31	74.00	-19.69	Pk
H	12185.00	43.26	31.02	8.99	25.57	46.80	54.00	-7.20	AV



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Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	51.74	30.55	5.77	24.66	51.62	74.00	-22.38	Pk
V	4924.00	43.50	30.55	5.77	24.66	43.38	54.00	-10.62	AV
V	7386.00	51.71	30.33	6.32	24.55	52.25	74.00	-21.75	Pk
V	7386.00	43.32	30.33	6.32	24.55	43.86	54.00	-10.14	AV
V	9848.00	53.27	30.85	7.45	24.69	54.56	74.00	-19.44	Pk
V	9848.00	43.88	30.85	7.45	24.69	45.17	54.00	-8.83	AV
V	12310.00	54.62	31.02	8.99	25.57	58.16	74.00	-15.84	Pk
V	12310.00	43.99	31.02	8.99	25.57	47.53	54.00	-6.47	AV
H	4924.00	50.75	30.55	5.77	24.66	50.63	74.00	-23.37	Pk
H	4924.00	43.94	30.55	5.77	24.66	43.82	54.00	-10.18	AV
H	7386.00	50.55	30.33	6.32	24.55	51.09	74.00	-22.91	Pk
H	7386.00	43.88	30.33	6.32	24.55	44.42	54.00	-9.58	AV
H	9848.00	51.88	30.85	7.45	24.69	53.17	74.00	-20.83	Pk
H	9848.00	43.73	30.85	7.45	24.69	45.02	54.00	-8.98	AV
H	12310.00	54.42	31.02	8.99	25.57	57.96	74.00	-16.04	Pk
H	12310.00	43.85	31.02	8.99	25.57	47.39	54.00	-6.61	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.



802.11g ANT 0

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:2412MHz									
V	4824.00	51.55	30.55	5.77	24.66	51.43	74.00	-22.57	Pk
V	4824.00	43.02	30.55	5.77	24.66	42.90	54.00	-11.10	AV
V	7236.00	50.78	30.33	6.32	24.55	51.32	74.00	-22.68	Pk
V	7236.00	43.96	30.33	6.32	24.55	44.50	54.00	-9.50	AV
V	9648.00	51.63	30.85	7.45	24.69	52.92	74.00	-21.08	Pk
V	9648.00	43.66	30.85	7.45	24.69	44.95	54.00	-9.05	AV
V	12060.00	50.26	31.02	8.99	25.57	53.80	74.00	-20.20	Pk
V	12060.00	43.21	31.02	8.99	25.57	46.75	54.00	-7.25	AV
H	4824.00	52.04	30.55	5.77	24.66	51.92	74.00	-22.08	Pk
H	4824.00	43.36	30.55	5.77	24.66	43.24	54.00	-10.76	AV
H	7236.00	54.21	30.33	6.32	24.55	54.75	74.00	-19.25	Pk
H	7236.00	43.99	30.33	6.32	24.55	44.53	54.00	-9.47	AV
H	9648.00	50.60	30.85	7.45	24.69	51.89	74.00	-22.11	Pk
H	9648.00	43.08	30.85	7.45	24.69	44.37	54.00	-9.63	AV
H	12060.00	50.03	31.02	8.99	25.57	53.57	74.00	-20.43	Pk
H	12060.00	43.56	31.02	8.99	25.57	47.10	54.00	-6.90	AV

Polar (H/V)	Frequency	Meter Reading	Pre-amp lifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:2437MHz									
V	4874.00	50.56	30.55	5.77	24.66	50.44	74.00	-23.56	Pk
V	4874.00	43.38	30.55	5.77	24.66	43.26	54.00	-10.74	AV
V	7311.00	53.75	30.33	6.32	24.55	54.29	74.00	-19.71	Pk
V	7311.00	43.13	30.33	6.32	24.55	43.67	54.00	-10.33	AV
V	9748.00	52.16	30.85	7.45	24.69	53.45	74.00	-20.55	Pk
V	9748.00	43.85	30.85	7.45	24.69	45.14	54.00	-8.86	AV
V	12185.00	51.14	31.02	8.99	25.57	54.68	74.00	-19.32	Pk
V	12185.00	43.13	31.02	8.99	25.57	46.67	54.00	-7.33	AV
H	4874.00	52.87	30.55	5.77	24.66	52.75	74.00	-21.25	Pk
H	4874.00	43.56	30.55	5.77	24.66	43.44	54.00	-10.56	AV
H	7311.00	53.22	30.33	6.32	24.55	53.76	74.00	-20.24	Pk
H	7311.00	43.35	30.33	6.32	24.55	43.89	54.00	-10.11	AV
H	9748.00	51.00	30.85	7.45	24.69	52.29	74.00	-21.71	Pk
H	9748.00	43.87	30.85	7.45	24.69	45.16	54.00	-8.84	AV
H	12185.00	54.44	31.02	8.99	25.57	57.98	74.00	-16.02	Pk
H	12185.00	43.70	31.02	8.99	25.57	47.24	54.00	-6.76	AV



Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	52.10	30.55	5.77	24.66	51.98	74.00	-22.02	Pk
V	4924.00	43.83	30.55	5.77	24.66	43.71	54.00	-10.29	AV
V	7386.00	50.18	30.33	6.32	24.55	50.72	74.00	-23.28	Pk
V	7386.00	43.80	30.33	6.32	24.55	44.34	54.00	-9.66	AV
V	9848.00	53.30	30.85	7.45	24.69	54.59	74.00	-19.41	Pk
V	9848.00	43.57	30.85	7.45	24.69	44.86	54.00	-9.14	AV
V	12310.00	50.95	31.02	8.99	25.57	54.49	74.00	-19.51	Pk
V	12310.00	43.89	31.02	8.99	25.57	47.43	54.00	-6.57	AV
H	4924.00	50.95	30.55	5.77	24.66	50.83	74.00	-23.17	Pk
H	4924.00	43.27	30.55	5.77	24.66	43.15	54.00	-10.85	AV
H	7386.00	53.84	30.33	6.32	24.55	54.38	74.00	-19.62	Pk
H	7386.00	43.30	30.33	6.32	24.55	43.84	54.00	-10.16	AV
H	9848.00	50.81	30.85	7.45	24.69	52.10	74.00	-21.90	Pk
H	9848.00	43.96	30.85	7.45	24.69	45.25	54.00	-8.75	AV
H	12310.00	52.74	31.02	8.99	25.57	56.28	74.00	-17.72	Pk
H	12310.00	43.05	31.02	8.99	25.57	46.59	54.00	-7.41	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.



802.11n20 MIMO

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:2412MHz									
V	4824.00	54.81	30.55	5.77	24.66	54.69	74.00	-19.31	Pk
V	4824.00	43.72	30.55	5.77	24.66	43.60	54.00	-10.40	AV
V	7236.00	51.99	30.33	6.32	24.55	52.53	74.00	-21.47	Pk
V	7236.00	43.00	30.33	6.32	24.55	43.54	54.00	-10.46	AV
V	9648.00	53.87	30.85	7.45	24.69	55.16	74.00	-18.84	Pk
V	9648.00	43.73	30.85	7.45	24.69	45.02	54.00	-8.98	AV
V	12060.00	53.44	31.02	8.99	25.57	56.98	74.00	-17.02	Pk
V	12060.00	43.06	31.02	8.99	25.57	46.60	54.00	-7.40	AV
H	4824.00	50.96	30.55	5.77	24.66	50.84	74.00	-23.16	Pk
H	4824.00	43.27	30.55	5.77	24.66	43.15	54.00	-10.85	AV
H	7236.00	52.18	30.33	6.32	24.55	52.72	74.00	-21.28	Pk
H	7236.00	43.77	30.33	6.32	24.55	44.31	54.00	-9.69	AV
H	9648.00	50.51	30.85	7.45	24.69	51.80	74.00	-22.20	Pk
H	9648.00	43.12	30.85	7.45	24.69	44.41	54.00	-9.59	AV
H	12060.00	52.89	31.02	8.99	25.57	56.43	74.00	-17.57	Pk
H	12060.00	43.41	31.02	8.99	25.57	46.95	54.00	-7.05	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:2437MHz									
V	4874.00	53.08	30.55	5.77	24.66	52.96	74.00	-21.04	Pk
V	4874.00	43.04	30.55	5.77	24.66	42.92	54.00	-11.08	AV
V	7311.00	54.15	30.33	6.32	24.55	54.69	74.00	-19.31	Pk
V	7311.00	43.46	30.33	6.32	24.55	44.00	54.00	-10.00	AV
V	9748.00	50.24	30.85	7.45	24.69	51.53	74.00	-22.47	Pk
V	9748.00	43.68	30.85	7.45	24.69	44.97	54.00	-9.03	AV
V	12185.00	54.86	31.02	8.99	25.57	58.40	74.00	-15.60	Pk
V	12185.00	43.24	31.02	8.99	25.57	46.78	54.00	-7.22	AV
H	4874.00	54.87	30.55	5.77	24.66	54.75	74.00	-19.25	Pk
H	4874.00	43.09	30.55	5.77	24.66	42.97	54.00	-11.03	AV
H	7311.00	50.95	30.33	6.32	24.55	51.49	74.00	-22.51	Pk
H	7311.00	43.42	30.33	6.32	24.55	43.96	54.00	-10.04	AV
H	9748.00	53.29	30.85	7.45	24.69	54.58	74.00	-19.42	Pk
H	9748.00	43.66	30.85	7.45	24.69	44.95	54.00	-9.05	AV
H	12185.00	52.85	31.02	8.99	25.57	56.39	74.00	-17.61	Pk
H	12185.00	43.83	31.02	8.99	25.57	47.37	54.00	-6.63	AV



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Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	50.79	30.55	5.77	24.66	50.67	74.00	-23.33	Pk
V	4924.00	43.83	30.55	5.77	24.66	43.71	54.00	-10.29	AV
V	7386.00	52.39	30.33	6.32	24.55	52.93	74.00	-21.07	Pk
V	7386.00	43.04	30.33	6.32	24.55	43.58	54.00	-10.42	AV
V	9848.00	53.07	30.85	7.45	24.69	54.36	74.00	-19.64	Pk
V	9848.00	43.94	30.85	7.45	24.69	45.23	54.00	-8.77	AV
V	12310.00	54.15	31.02	8.99	25.57	57.69	74.00	-16.31	Pk
V	12310.00	43.95	31.02	8.99	25.57	47.49	54.00	-6.51	AV
H	4924.00	50.31	30.55	5.77	24.66	50.19	74.00	-23.81	Pk
H	4924.00	43.40	30.55	5.77	24.66	43.28	54.00	-10.72	AV
H	7386.00	52.65	30.33	6.32	24.55	53.19	74.00	-20.81	Pk
H	7386.00	43.50	30.33	6.32	24.55	44.04	54.00	-9.96	AV
H	9848.00	51.46	30.85	7.45	24.69	52.75	74.00	-21.25	Pk
H	9848.00	43.36	30.85	7.45	24.69	44.65	54.00	-9.35	AV
H	12310.00	51.03	31.02	8.99	25.57	54.57	74.00	-19.43	Pk
H	12310.00	43.33	31.02	8.99	25.57	46.87	54.00	-7.13	AV



802.11n40 MIMO

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:2422MHz									
V	4844.00	50.71	30.55	5.77	24.66	50.59	74.00	-23.41	Pk
V	4844.00	43.79	30.55	5.77	24.66	43.67	54.00	-10.33	AV
V	7266.00	51.54	30.33	6.32	24.55	52.08	74.00	-21.92	Pk
V	7266.00	43.90	30.33	6.32	24.55	44.44	54.00	-9.56	AV
V	9688.00	51.73	30.85	7.45	24.69	53.02	74.00	-20.98	Pk
V	9688.00	43.08	30.85	7.45	24.69	44.37	54.00	-9.63	AV
V	12110.00	53.90	31.02	8.99	25.57	57.44	74.00	-16.56	Pk
V	12110.00	43.89	31.02	8.99	25.57	47.43	54.00	-6.57	AV
H	4844.00	50.98	30.55	5.77	24.66	50.86	74.00	-23.14	Pk
H	4844.00	43.10	30.55	5.77	24.66	42.98	54.00	-11.02	AV
H	7266.00	51.70	30.33	6.32	24.55	52.24	74.00	-21.76	Pk
H	7266.00	43.39	30.33	6.32	24.55	43.93	54.00	-10.07	AV
H	9688.00	50.58	30.85	7.45	24.69	51.87	74.00	-22.13	Pk
H	9688.00	43.20	30.85	7.45	24.69	44.49	54.00	-9.51	AV
H	12110.00	52.43	31.02	8.99	25.57	55.97	74.00	-18.03	Pk
H	12110.00	43.07	31.02	8.99	25.57	46.61	54.00	-7.39	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:2437MHz									
V	4874.00	50.30	30.55	5.77	24.66	52.23	74.00	-21.77	Pk
V	4874.00	43.28	30.55	5.77	24.66	43.48	54.00	-10.52	AV
V	7311.00	51.89	30.33	6.32	24.55	54.16	74.00	-19.84	Pk
V	7311.00	43.52	30.33	6.32	24.55	43.66	54.00	-10.34	AV
V	9748.00	53.41	30.85	7.45	24.69	53.63	74.00	-20.37	Pk
V	9748.00	43.77	30.85	7.45	24.69	44.52	54.00	-9.48	AV
V	12185.00	53.83	31.02	8.99	25.57	56.82	74.00	-17.18	Pk
V	12185.00	43.67	31.02	8.99	25.57	47.86	54.00	-6.14	AV
H	4874.00	54.82	30.55	5.77	24.66	53.14	74.00	-20.86	Pk
H	4874.00	43.14	30.55	5.77	24.66	43.13	54.00	-10.87	AV
H	7311.00	50.62	30.33	6.32	24.55	52.82	74.00	-21.18	Pk
H	7311.00	43.99	30.33	6.32	24.55	43.19	54.00	-10.81	AV
H	9748.00	53.98	30.85	7.45	24.69	54.46	74.00	-19.54	Pk
H	9748.00	43.17	30.85	7.45	24.69	44.82	54.00	-9.18	AV
H	12185.00	52.84	31.02	8.99	25.57	54.88	74.00	-19.12	Pk
H	12185.00	43.51	31.02	8.99	25.57	45.75	54.00	-8.25	AV



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
High Channel:2452MHz									
V	4904.00	52.45	30.55	5.77	24.66	52.23	74.00	-21.77	Pk
V	4904.00	43.55	30.55	5.77	24.66	43.48	54.00	-10.52	AV
V	7356.00	54.84	30.33	6.32	24.55	54.16	74.00	-19.84	Pk
V	7356.00	43.02	30.33	6.32	24.55	43.66	54.00	-10.34	AV
V	9808.00	53.23	30.85	7.45	24.69	53.63	74.00	-20.37	Pk
V	9808.00	43.93	30.85	7.45	24.69	44.52	54.00	-9.48	AV
V	12260.00	53.64	31.02	8.99	25.57	56.82	74.00	-17.18	Pk
V	12260.00	43.18	31.02	8.99	25.57	47.86	54.00	-6.14	AV
H	4904.00	50.94	30.55	5.77	24.66	53.14	74.00	-20.86	Pk
H	4904.00	43.34	30.55	5.77	24.66	43.13	54.00	-10.87	AV
H	7356.00	52.50	30.33	6.32	24.55	52.82	74.00	-21.18	Pk
H	7356.00	43.16	30.33	6.32	24.55	43.19	54.00	-10.81	AV
H	9808.00	50.16	30.85	7.45	24.69	54.46	74.00	-19.54	Pk
H	9808.00	43.75	30.85	7.45	24.69	44.82	54.00	-9.18	AV
H	12260.00	53.65	31.02	8.99	25.57	54.88	74.00	-19.12	Pk
H	12260.00	43.48	31.02	8.99	25.57	45.75	54.00	-8.25	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.

Note:The 802.11b/g ANT0 / 1 is tested, and only the worst mode is reflected in the report



5. RADIATED BAND EMISSION MEASUREMENT

5.1 TEST REQUIREMENT:

Test Requirement:	FCC Part 15 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	Peak	1MHz	3MHz	Peak
	1GHz	Peak	1MHz	10Hz	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:

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

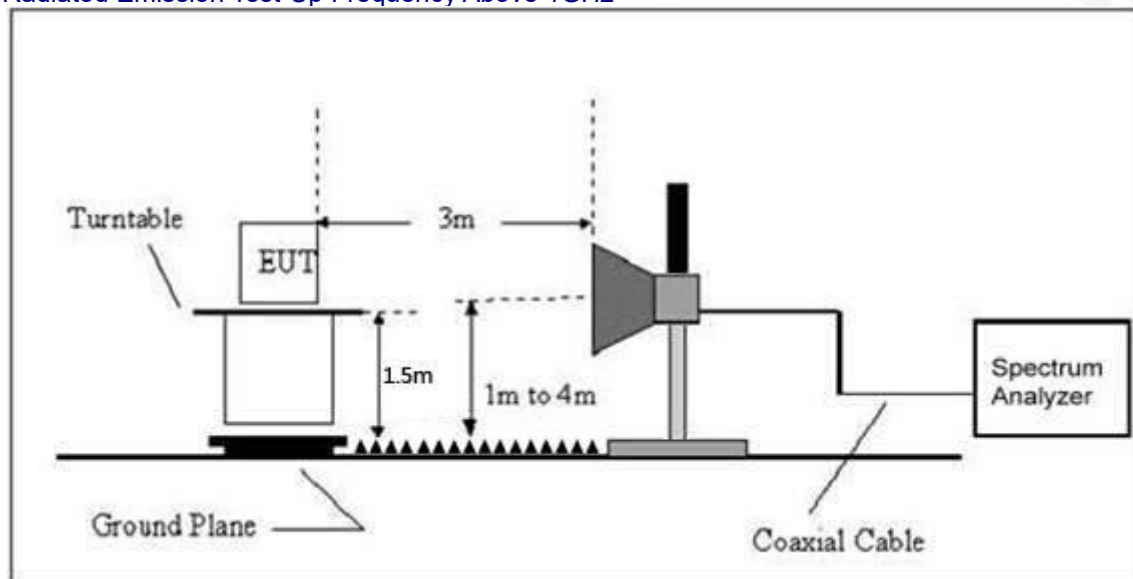
5.3 DEVIATION FROM TEST STANDARD

No deviation



5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



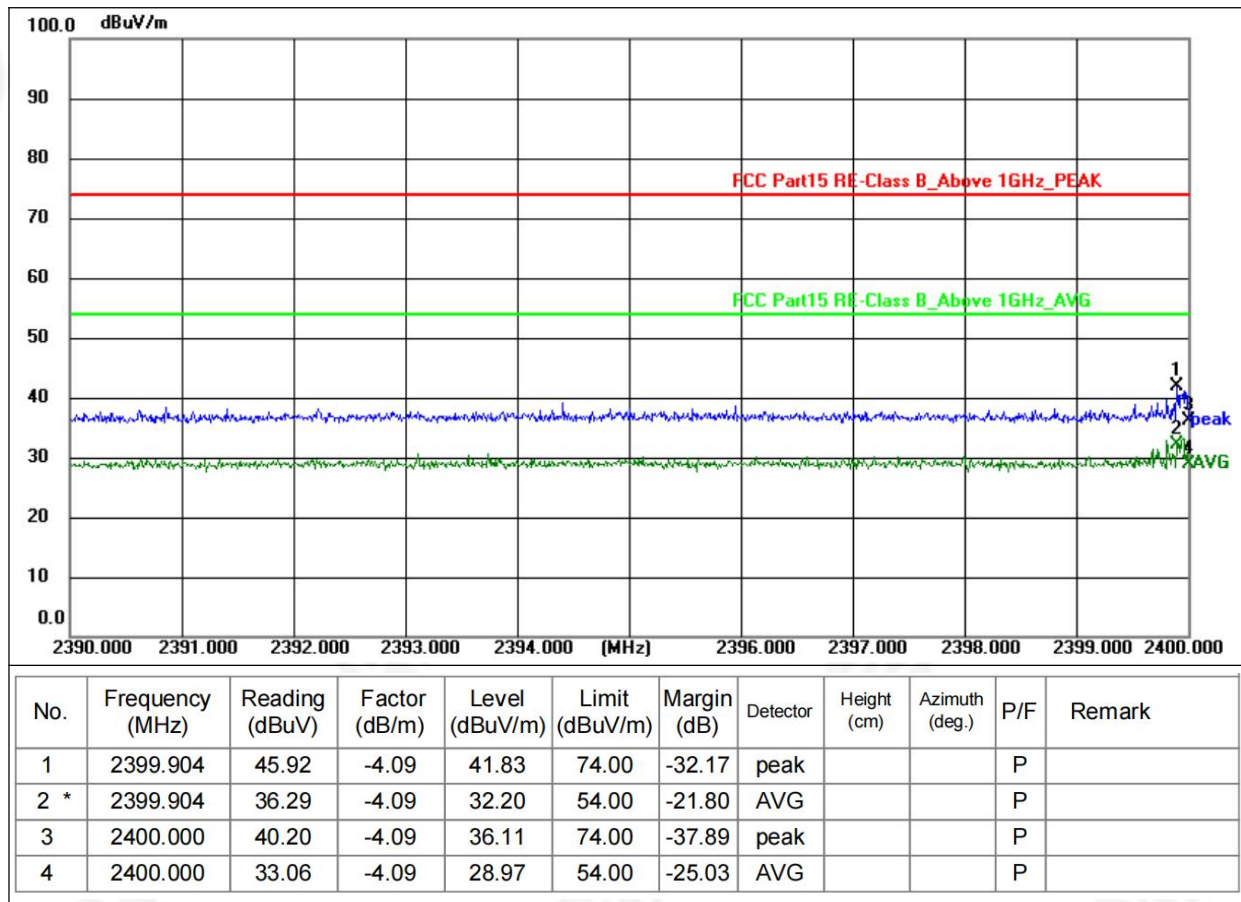
5.5 EUT OPERATING CONDITIONS

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.



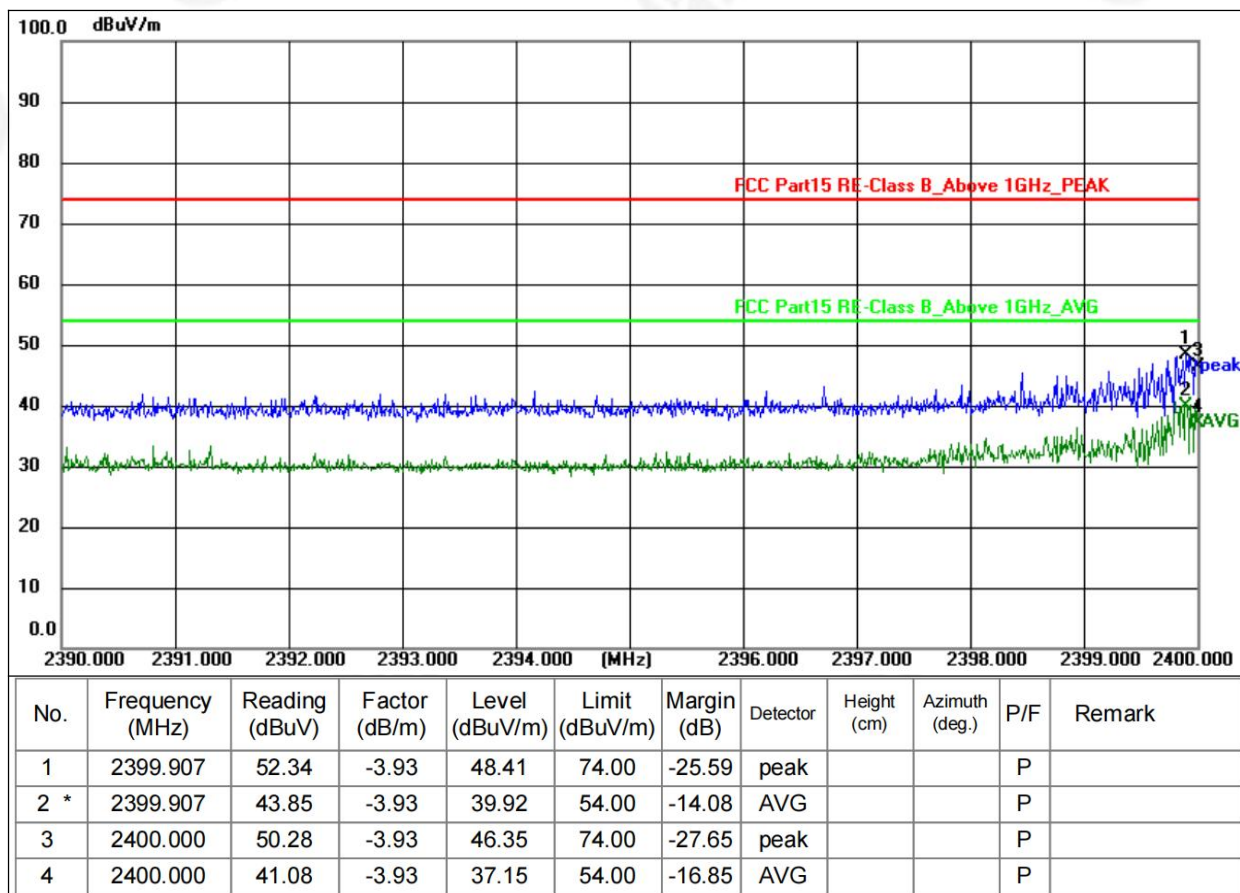
5.6 TEST RESULT

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)



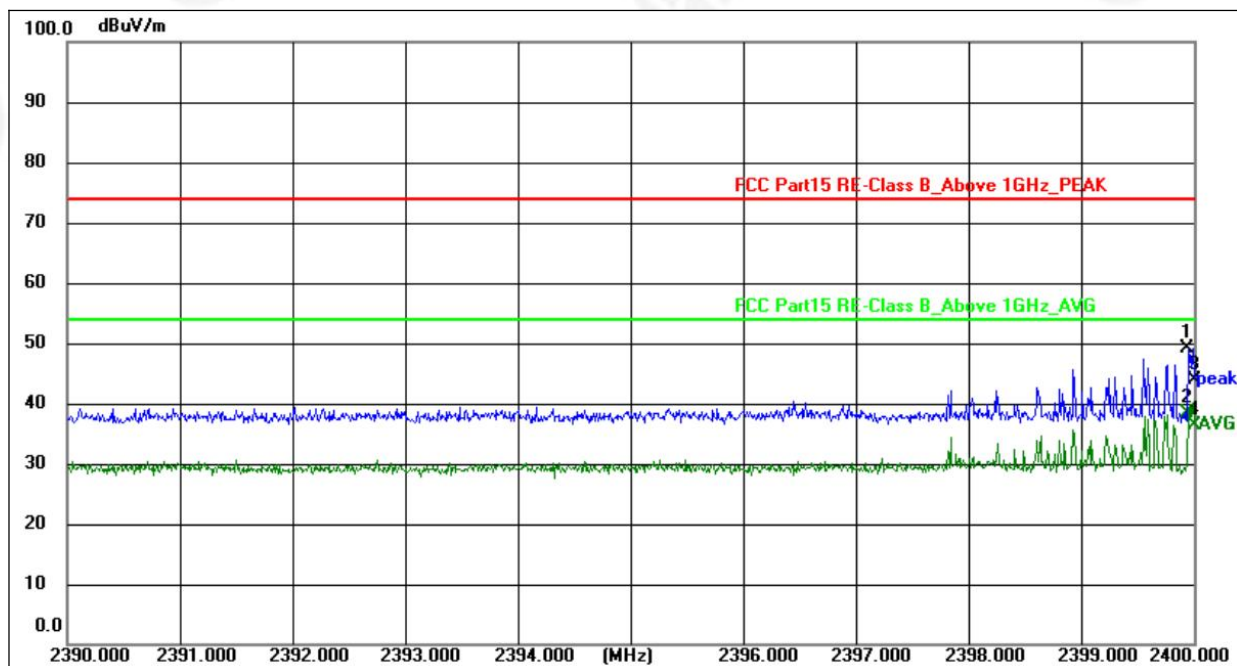


Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)





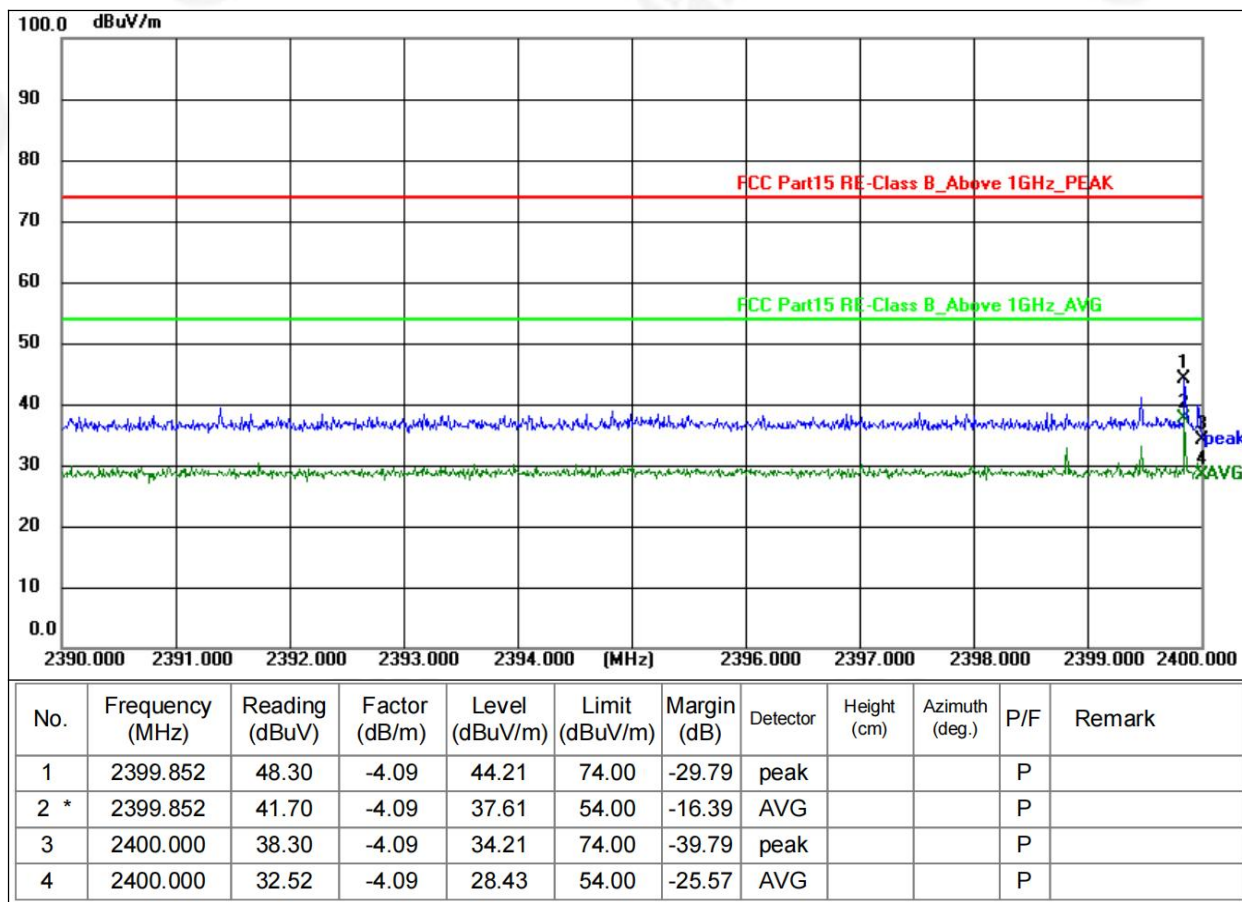
Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode	802.11n40 2422MHz TX (Worst case MIMO)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2399.952	53.15	-3.93	49.22	74.00	-24.78	peak			P	
2 *	2399.952	42.41	-3.93	38.48	54.00	-15.52	AVG			P	
3	2400.000	47.80	-3.93	43.87	74.00	-30.13	peak			P	
4	2400.000	40.32	-3.93	36.39	54.00	-17.61	AVG			P	

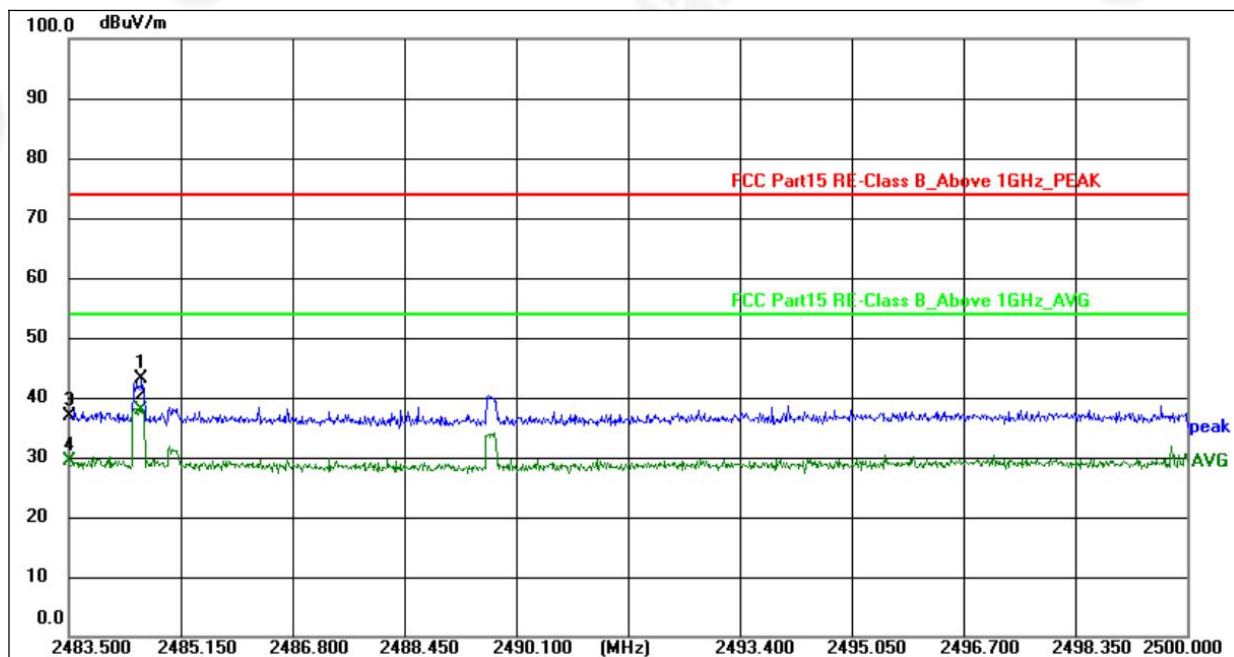


Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode	802.11n40 2422MHz TX (Worst case MIMO)





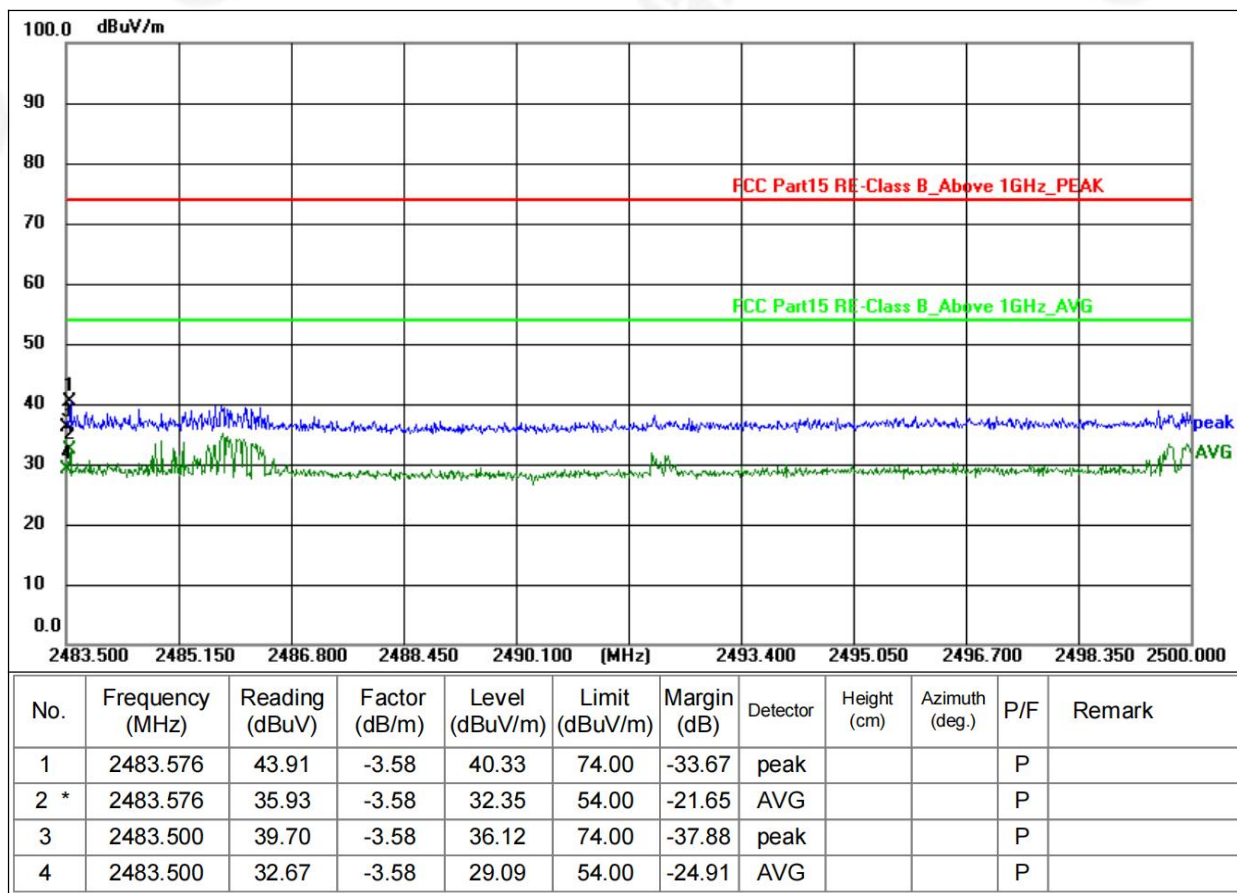
Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2484.592	47.01	-3.85	43.16	74.00	-30.84	peak			P	
2 *	2484.592	41.75	-3.85	37.90	54.00	-16.10	AVG			P	
3	2483.500	40.78	-3.85	36.93	74.00	-37.07	peak			P	
4	2483.500	33.20	-3.85	29.35	54.00	-24.65	AVG			P	

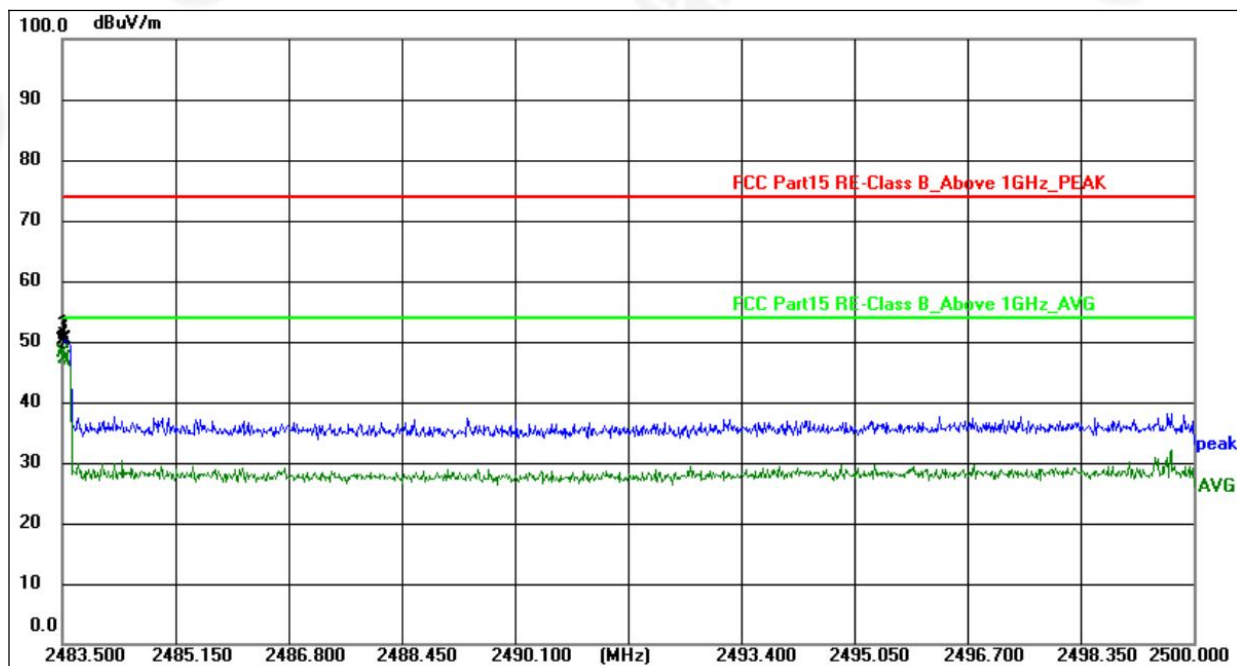


Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode	802.11b 2412MHz TX (Worst case ant0)





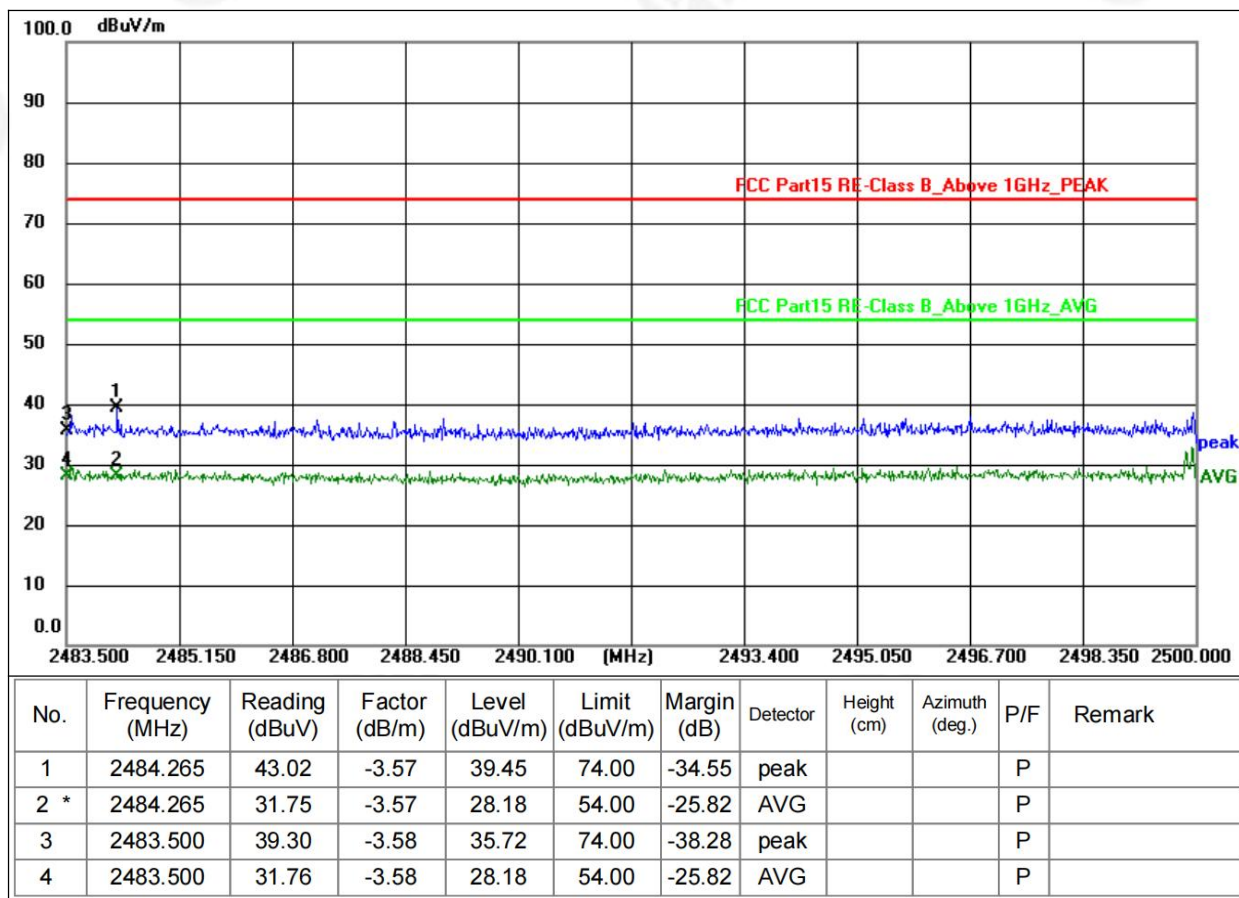
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode	802.11n40 2422MHz TX (Worst case MIMO)



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.555	53.91	-3.58	50.33	74.00	-23.67	peak			P	
2	2483.555	50.63	-3.58	47.05	54.00	-6.95	AVG			P	
3	2483.500	53.79	-3.58	50.21	74.00	-23.79	peak			P	
4 *	2483.500	51.64	-3.58	48.06	54.00	-5.94	AVG			P	



Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode	802.11n40 2422MHz TX (Worst case MIMO)



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
- Note:The 802.11b/g ANT0 / 1 is tested, and only the worst mode is reflected in the report



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: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
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

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant0	-17.14	0	-17.14	8	Pass
b	2437	Ant0	-17.37	0	-17.37	8	Pass
b	2462	Ant0	-17.67	0	-17.67	8	Pass
g	2412	Ant0	-14.47	0	-14.47	8	Pass
g	2437	Ant0	-15.2	0	-15.2	8	Pass
g	2462	Ant0	-15.32	0	-15.32	8	Pass
n20	2412	Ant0	-16.23	0	-16.23	8	Pass
n20	2437	Ant0	-14.47	0	-14.47	8	Pass
n20	2462	Ant0	-15.14	0	-15.14	8	Pass
n40	2422	Ant0	-17.47	0	-17.47	8	Pass
n40	2437	Ant0	-16.25	0	-16.25	8	Pass
n40	2452	Ant0	-19.22	0	-19.22	8	Pass

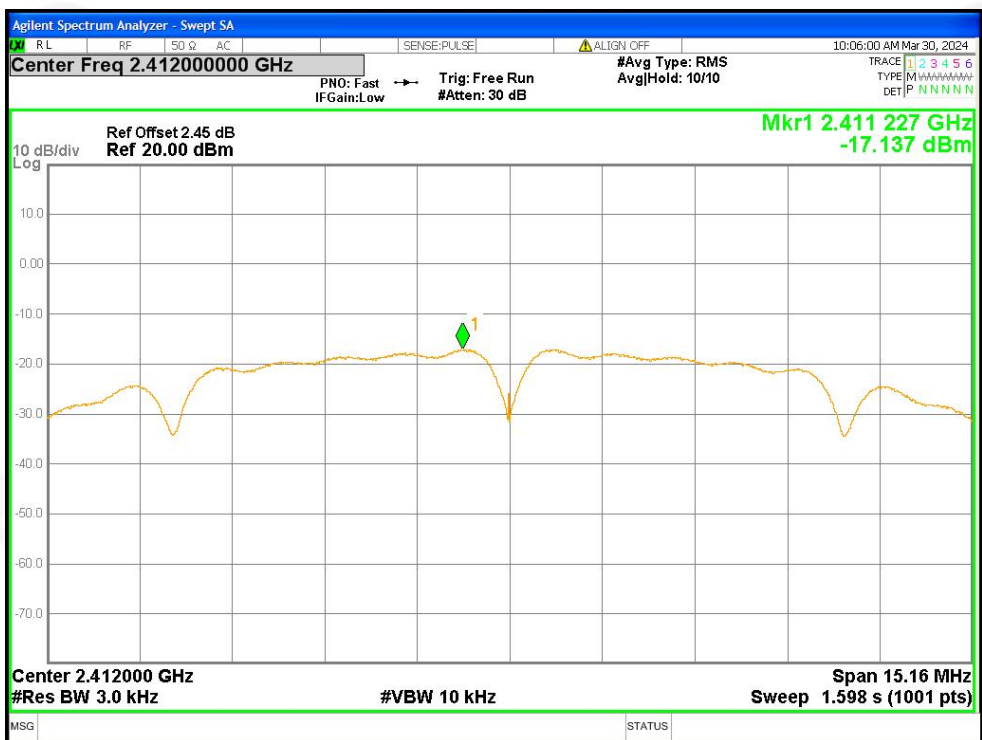
Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
b	2412	Ant1	-16.81	0	-16.81	8	Pass
b	2437	Ant1	-17.42	0	-17.42	8	Pass
b	2462	Ant1	-17.47	0	-17.47	8	Pass
g	2412	Ant1	-15.05	0	-15.05	8	Pass
g	2437	Ant1	-15.2	0	-15.2	8	Pass
g	2462	Ant1	-15.57	0	-15.57	8	Pass
n20	2412	Ant1	-16.25	0	-16.25	8	Pass
n20	2437	Ant1	-14.1	0	-14.1	8	Pass
n20	2462	Ant1	-15.09	0	-15.09	8	Pass
n40	2422	Ant1	-17.49	0	-17.49	8	Pass
n40	2437	Ant1	-17.62	0	-17.62	8	Pass
n40	2452	Ant1	-15.84	0	-15.84	8	Pass

ANT0+ANT1

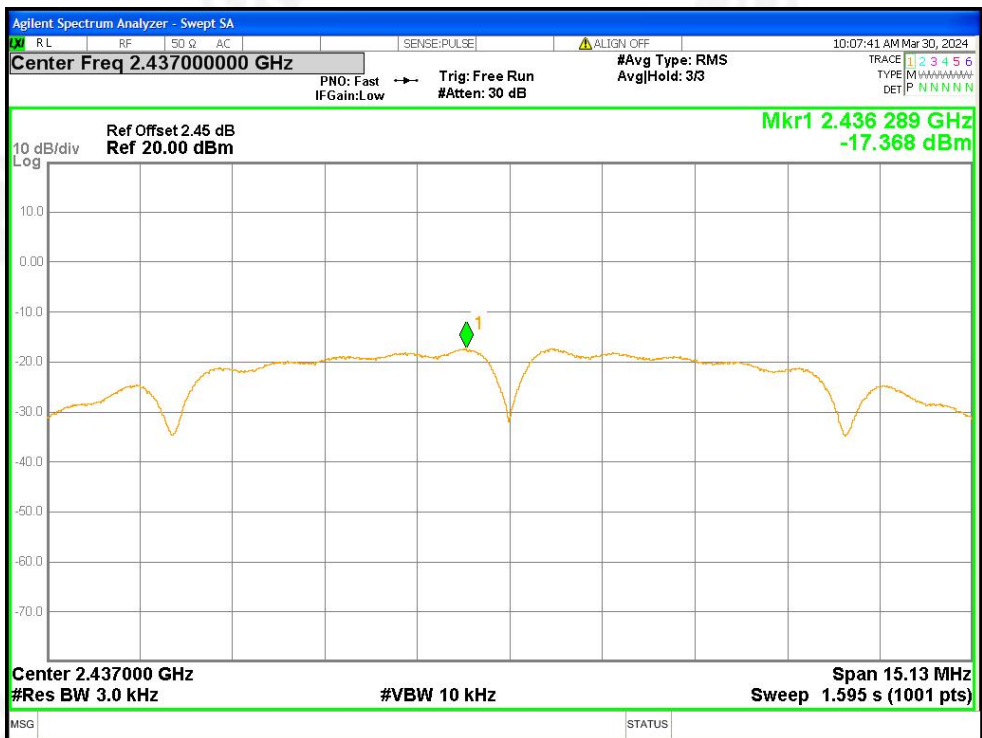
Mode	Frequency (MHz)	Conducted PSD ant 0 (dBm/3kHz)	Conducted PSD ant 1 (dBm/3kHz)	MIMO Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz) <=	Verdict
n20	2412	-16.23	-16.25	-13.23	5.71	Pass
n20	2437	-14.47	-14.1	-11.27	5.71	Pass
n20	2462	-15.14	-15.09	-12.10	5.71	Pass
N40	2422	-17.47	-17.49	-14.47	5.71	Pass
N40	2437	-16.25	-17.62	-13.87	5.71	Pass
N40	2452	-19.22	-15.84	-14.20	5.71	Pass

EUT supports MIMO mode for 802.11n mode, Direction Gain=antenna gain+10*log(X)=5.28+3.01=8.29(X is the number of antennas, it should be 2)

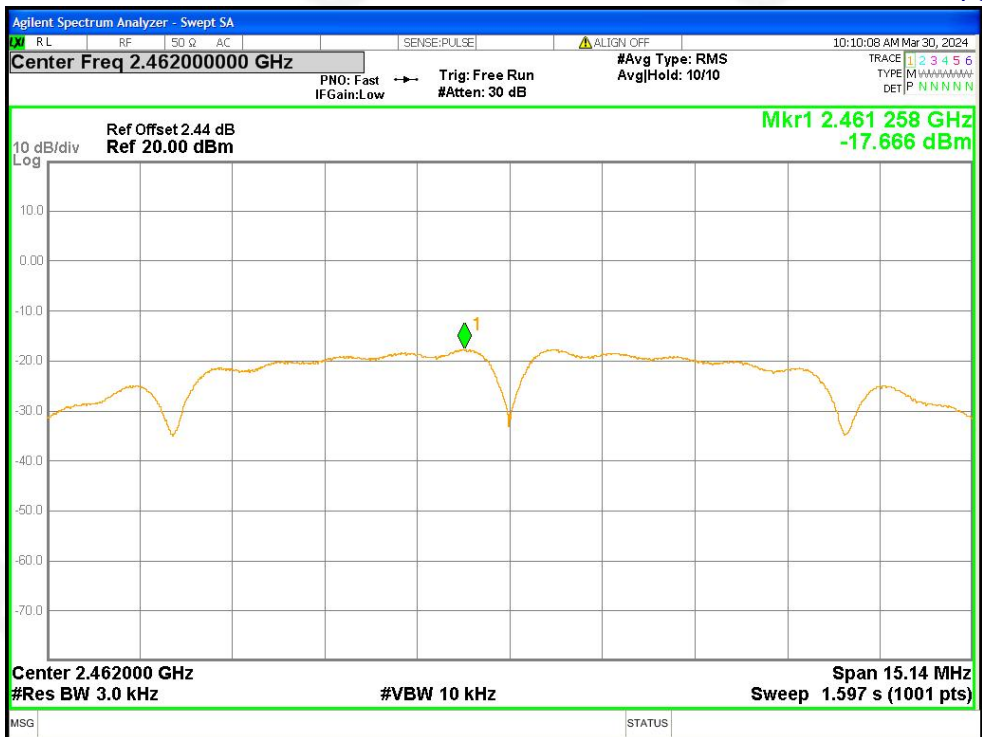
For MIMO mode, as the antenna gain is larger than 6 dBi, then the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



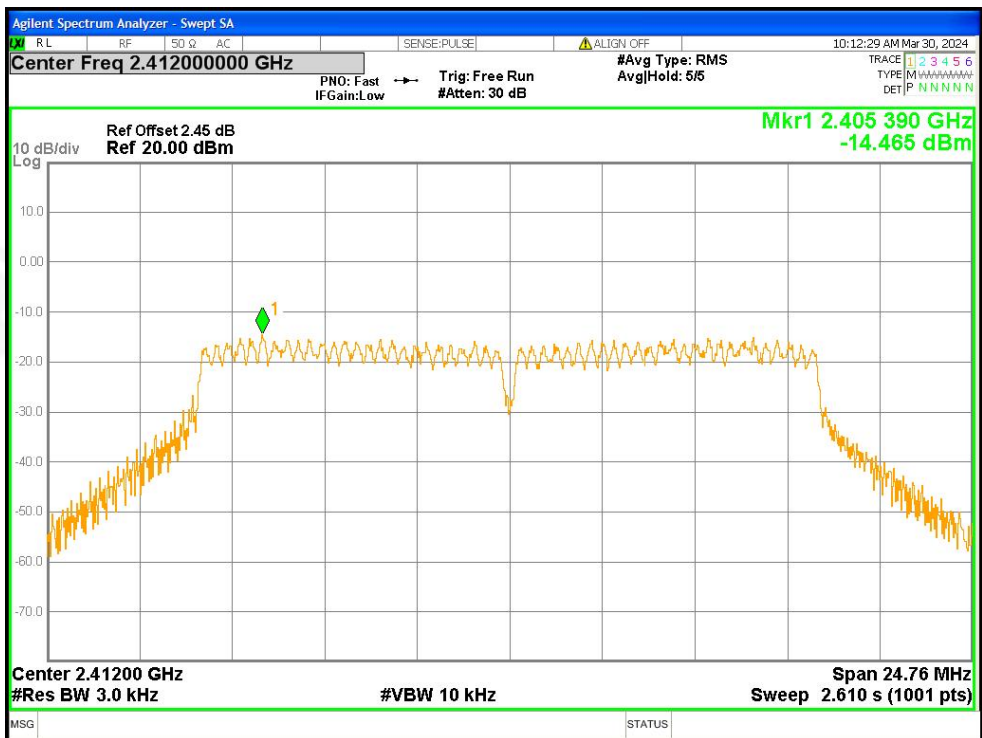
PSD NVNT b 2412MHz Ant0



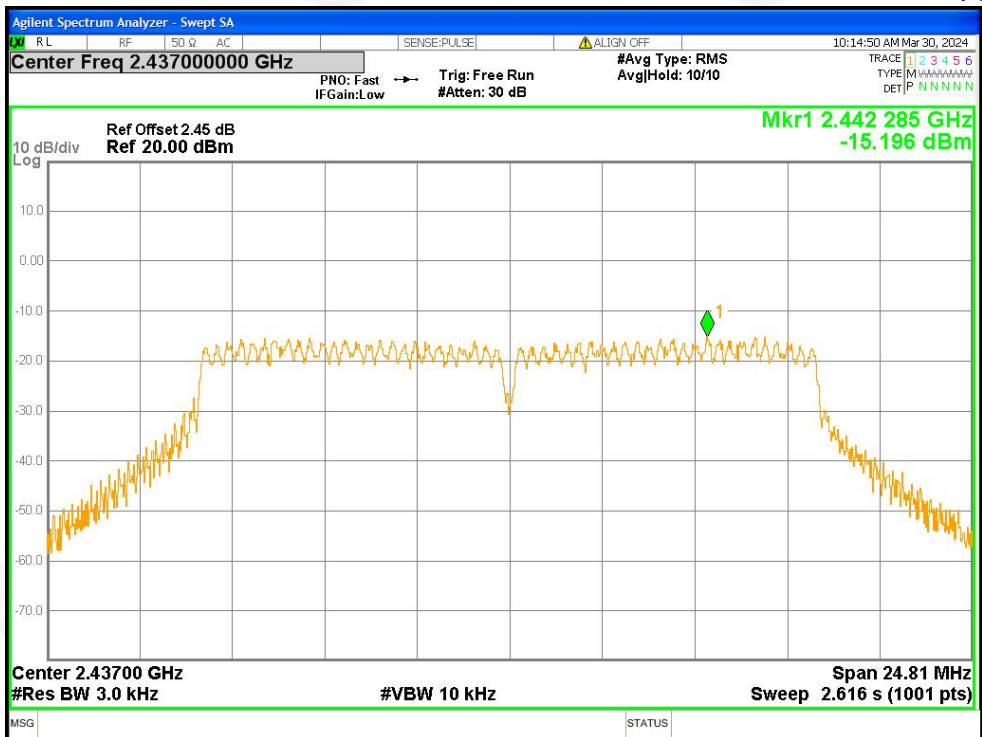
PSD NVNT b 2437MHz Ant0



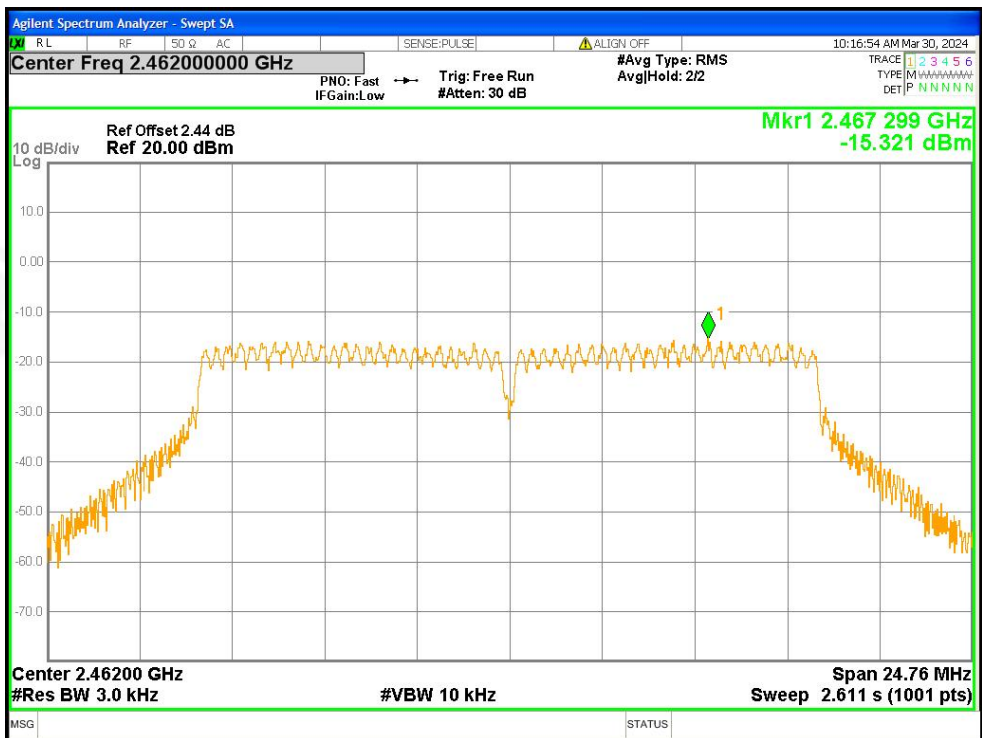
PSD NVNT b 2462MHz Ant0



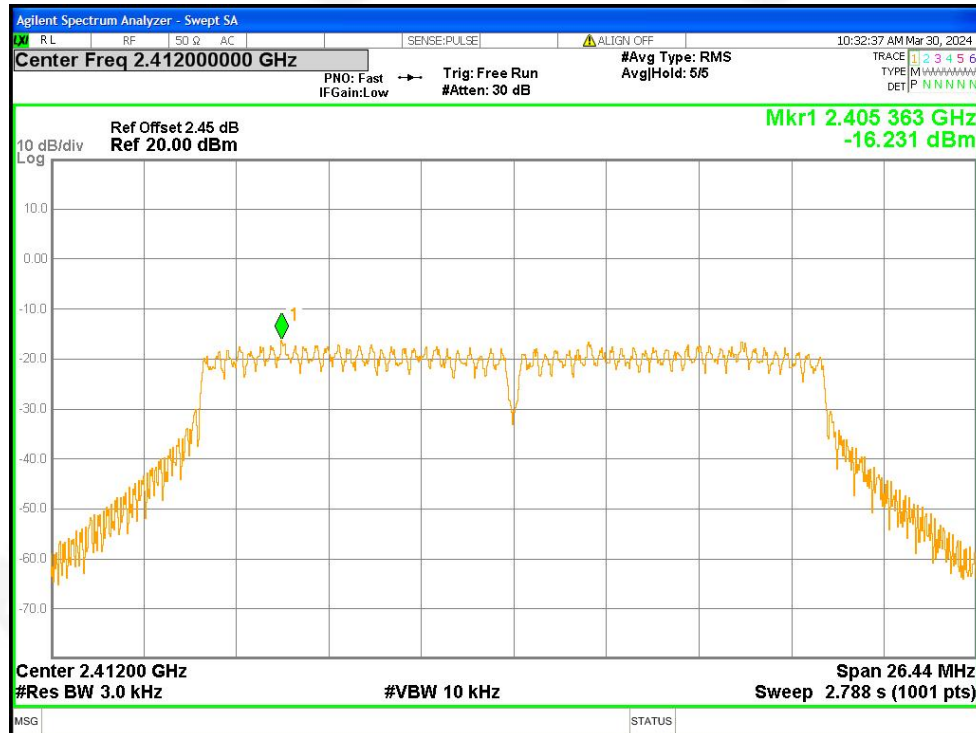
PSD NVNT g 2412MHz Ant0



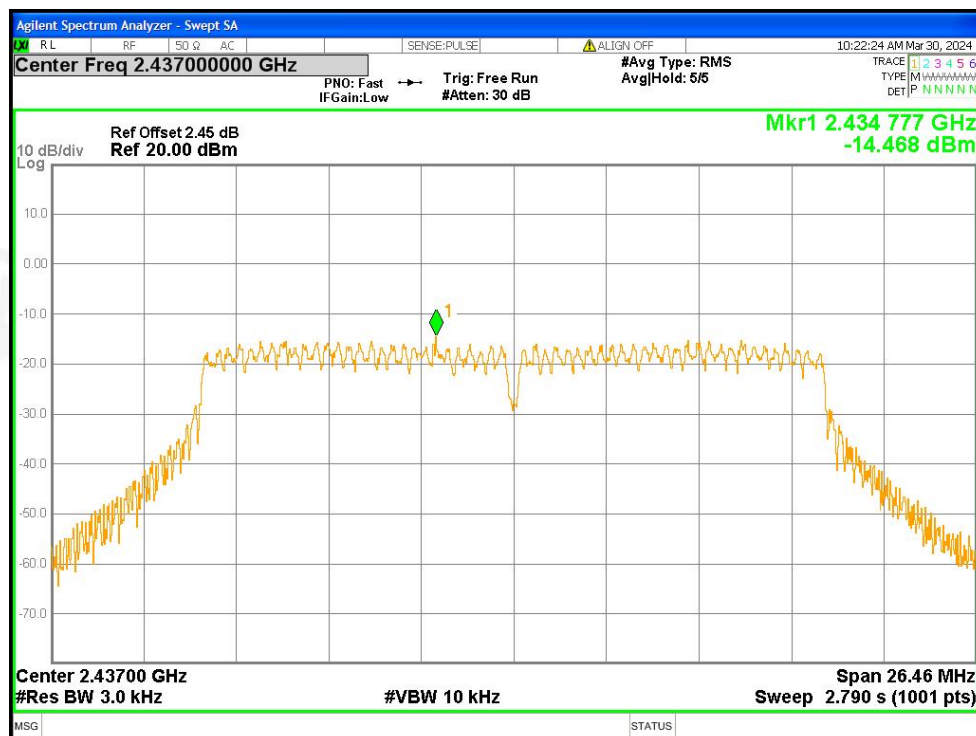
PSD NVNT g 2437MHz Ant0



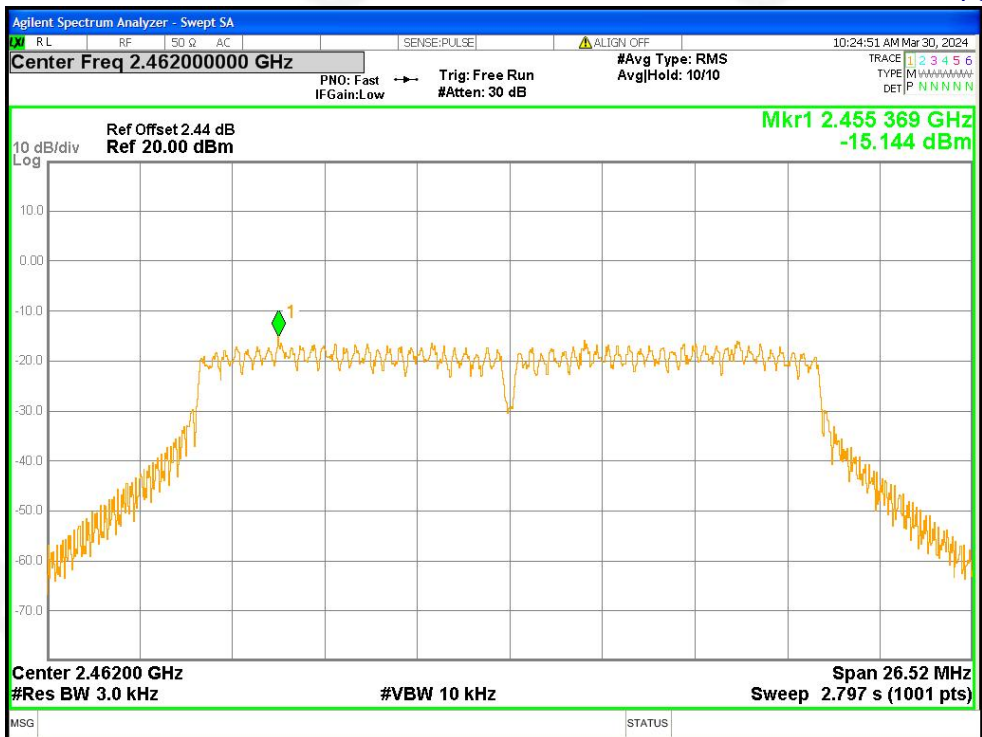
PSD NVNT g 2462MHz Ant0



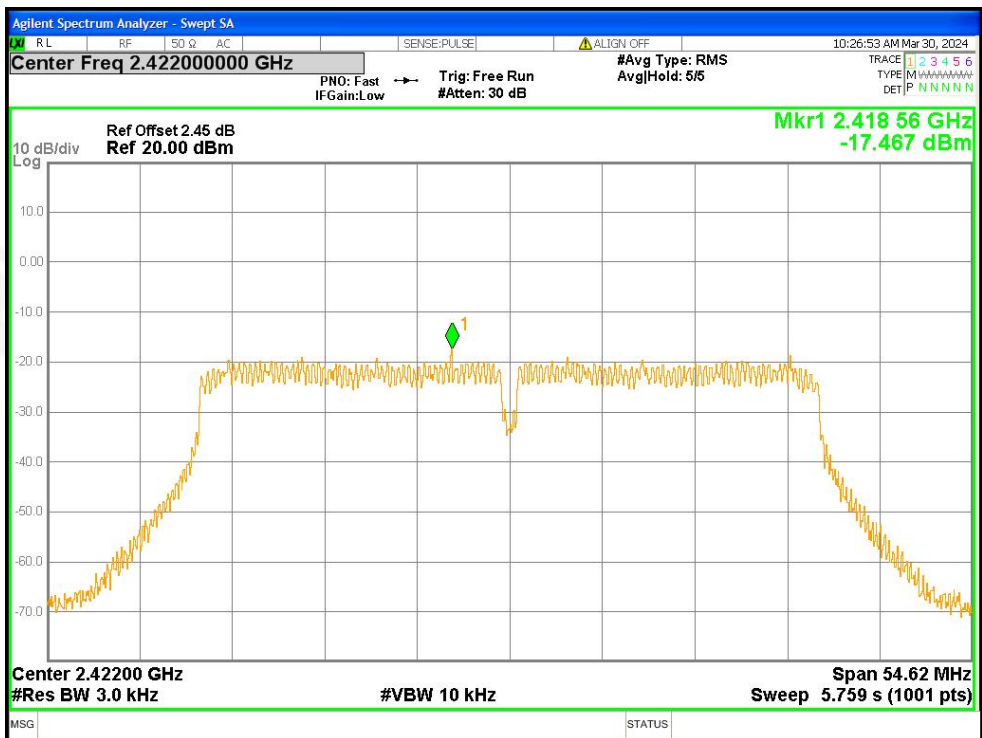
PSD NVNT n20 2412MHz Ant0



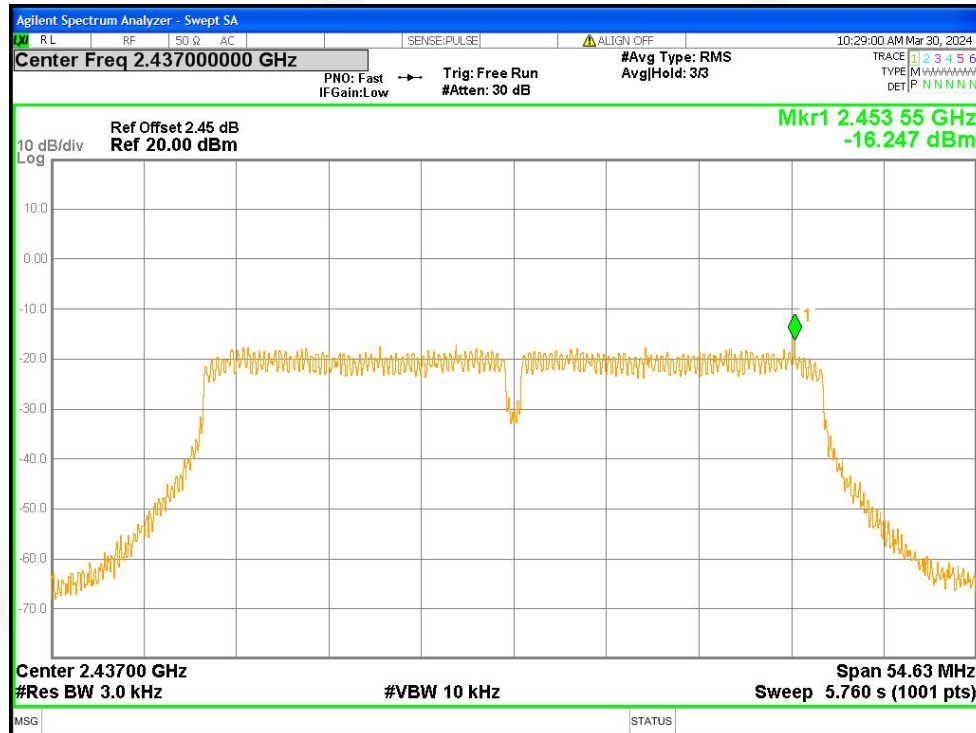
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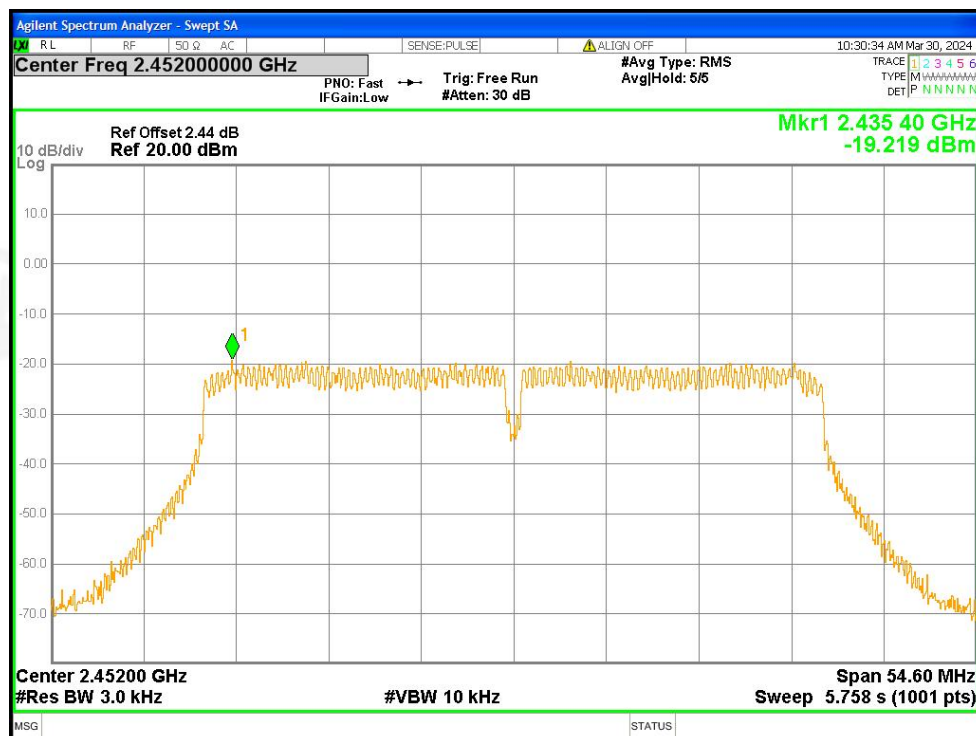
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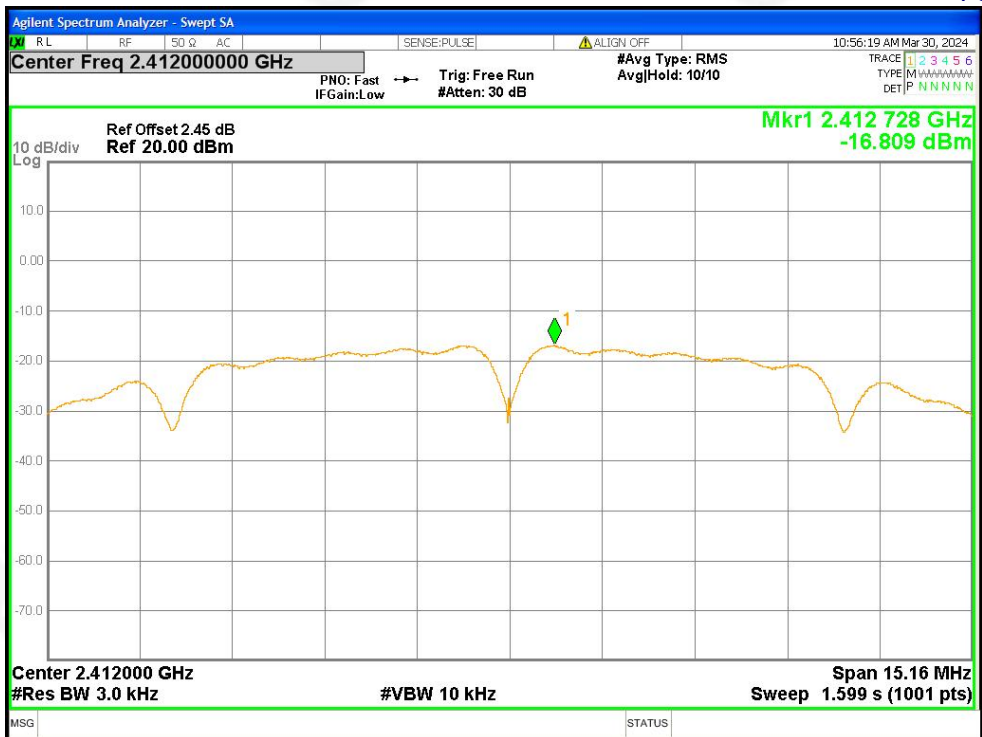
PSD NVNT n40 2422MHz Ant0



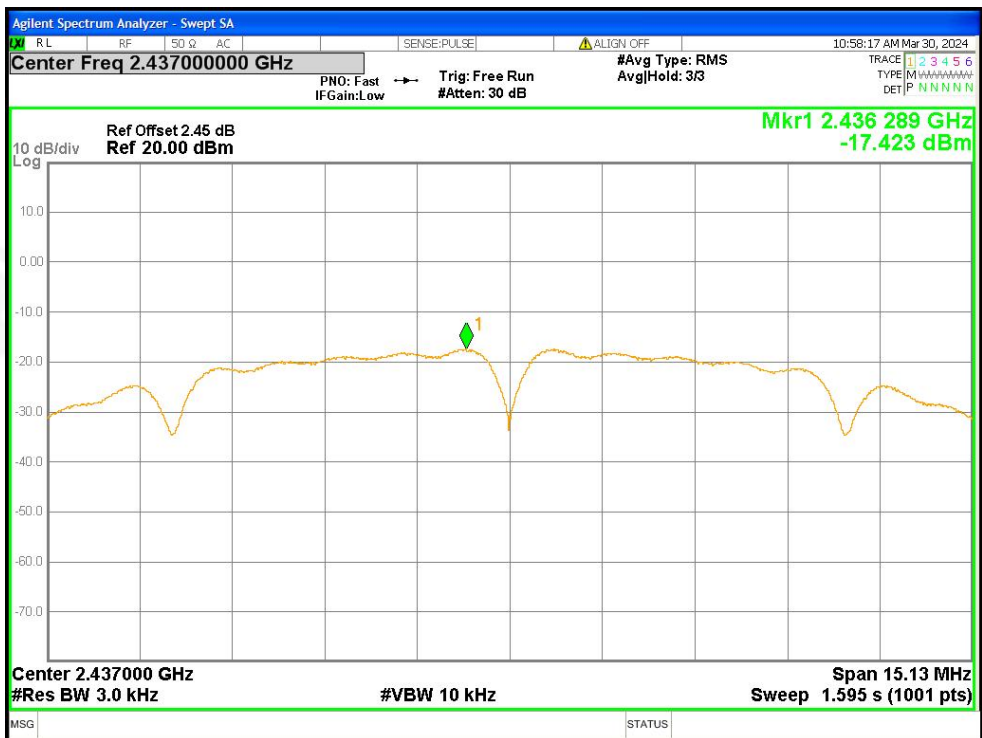
PSD NVNT n40 2437MHz Ant0



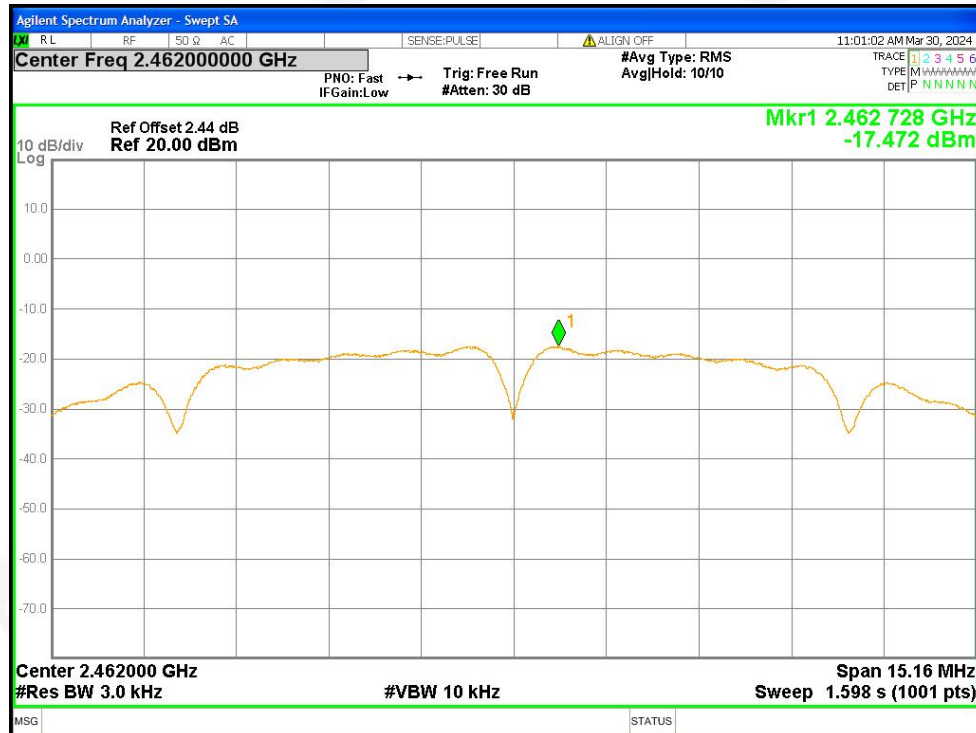
PSD NVNT n40 2452MHz Ant0



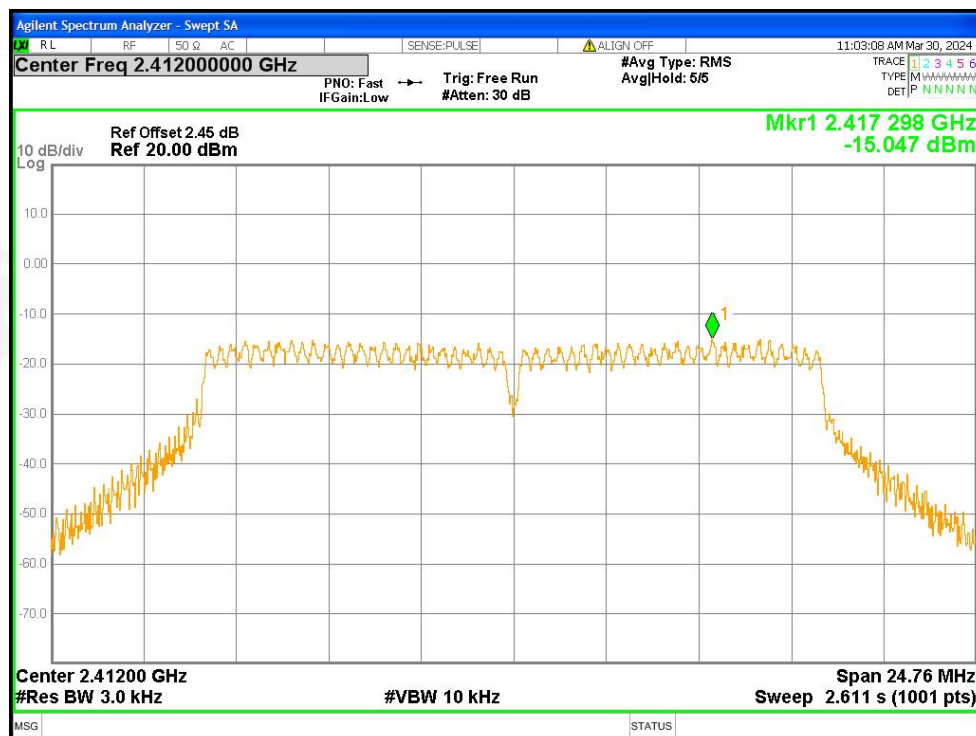
PSD NVNT b 2412MHz Ant1



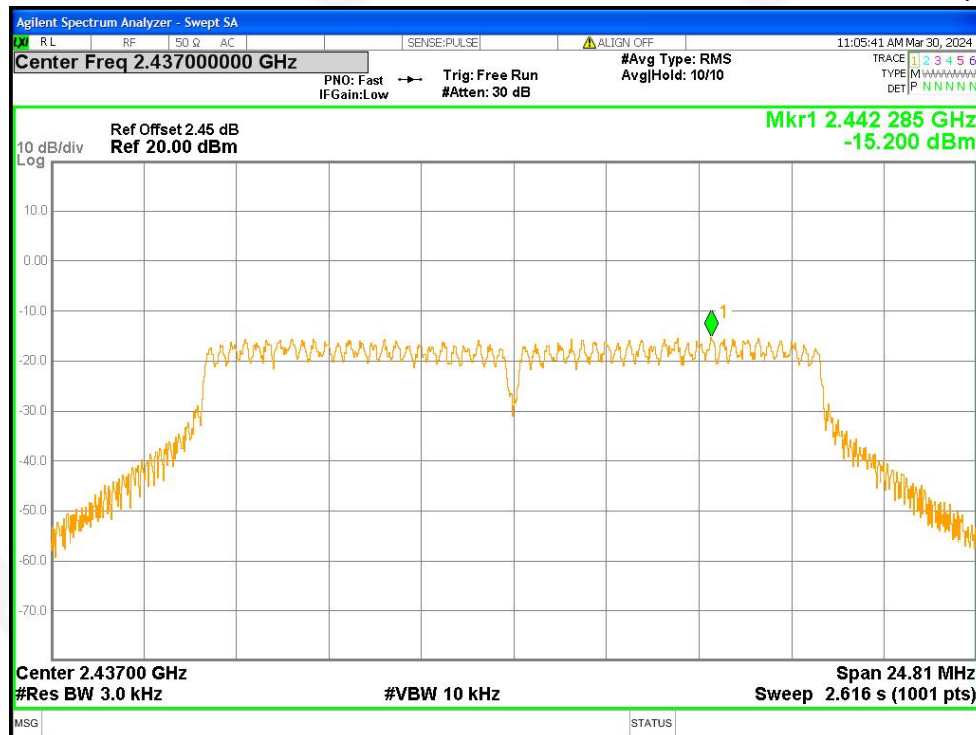
PSD NVNT b 2437MHz Ant1



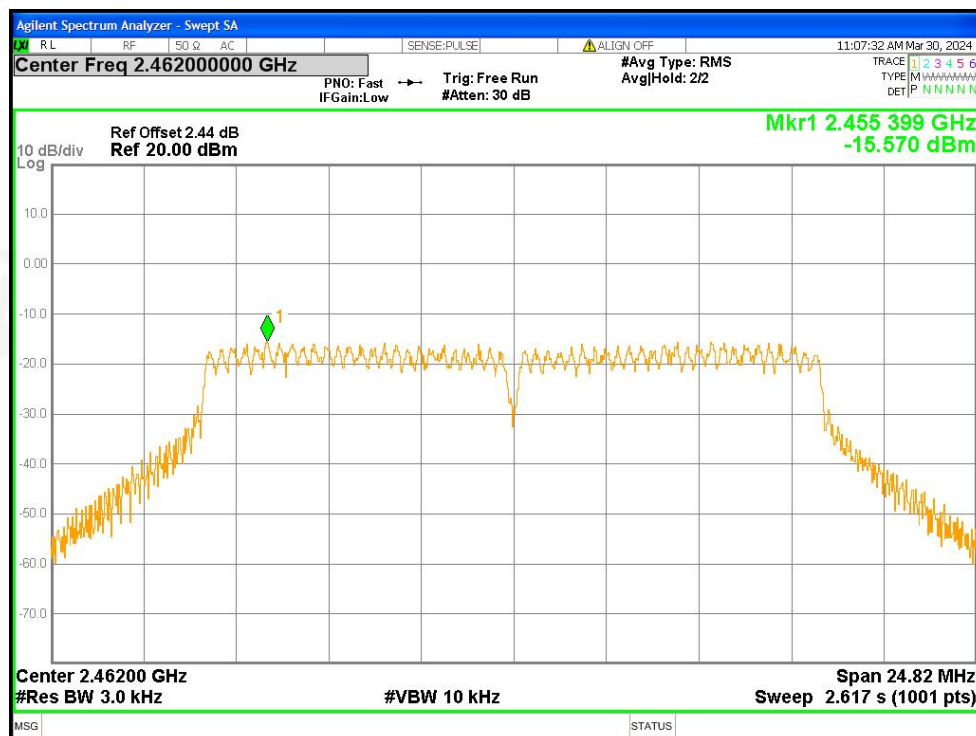
PSD NVNT b 2462MHz Ant1



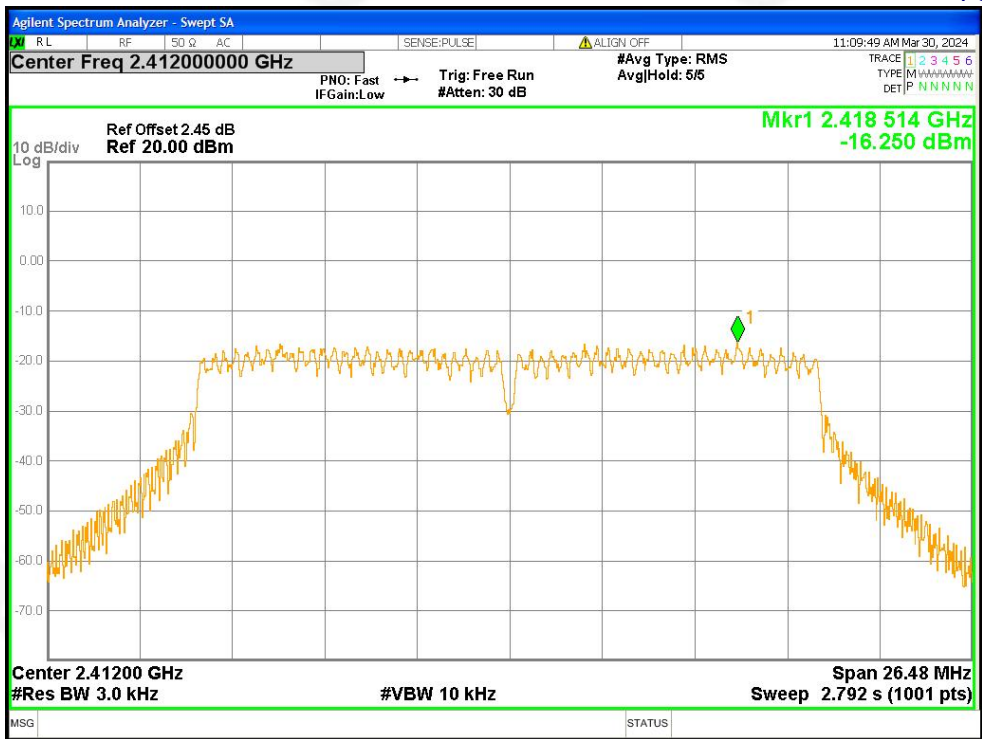
PSD NVNT g 2412MHz Ant1



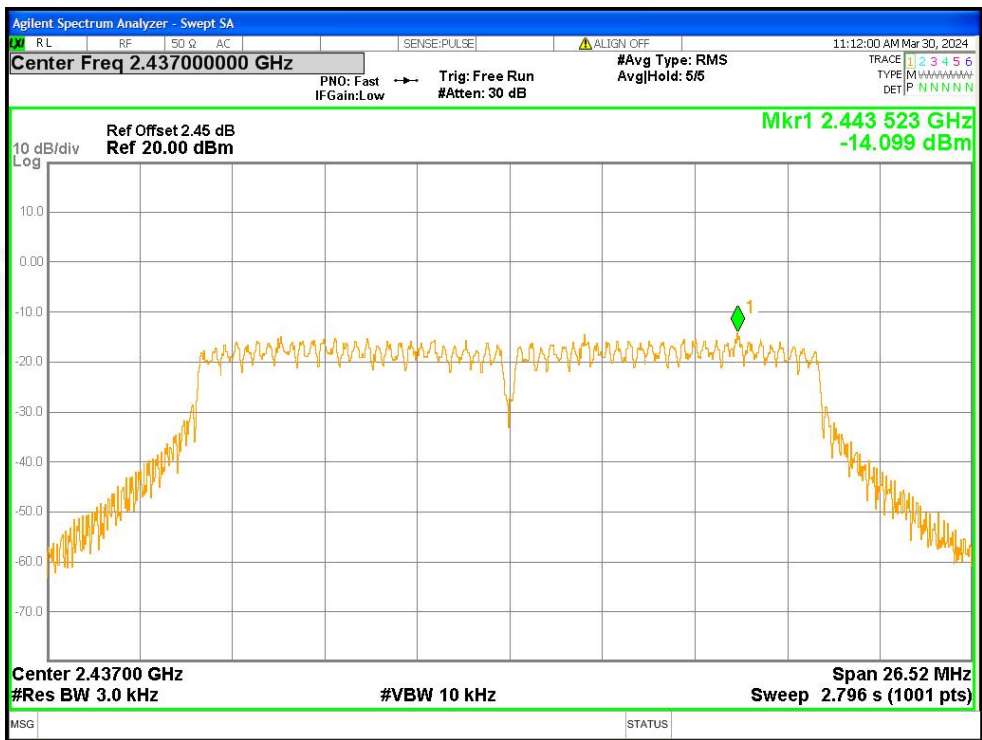
PSD NVNT g 2437MHz Ant1



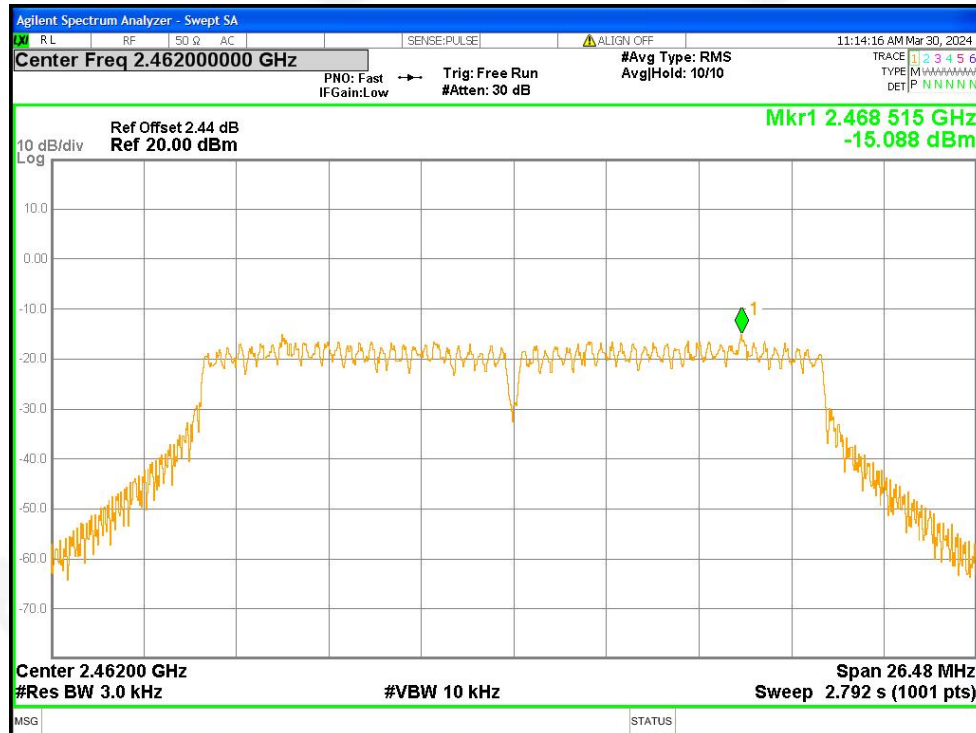
PSD NVNT g 2462MHz Ant1



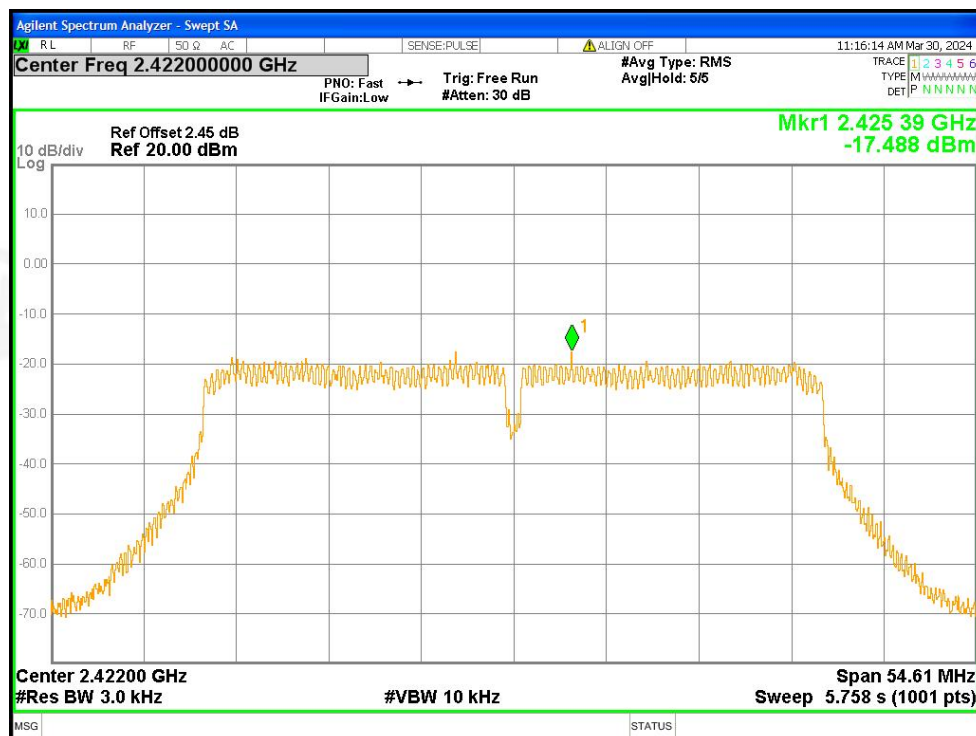
PSD NVNT n20 2412MHz Ant1



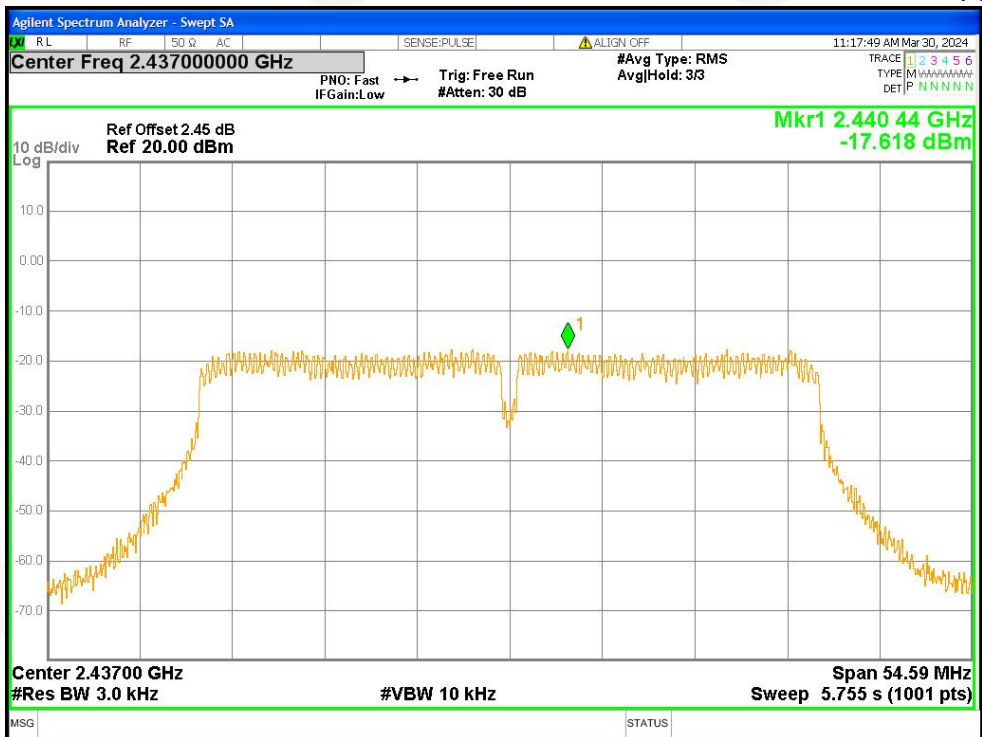
PSD NVNT n20 2437MHz Ant1



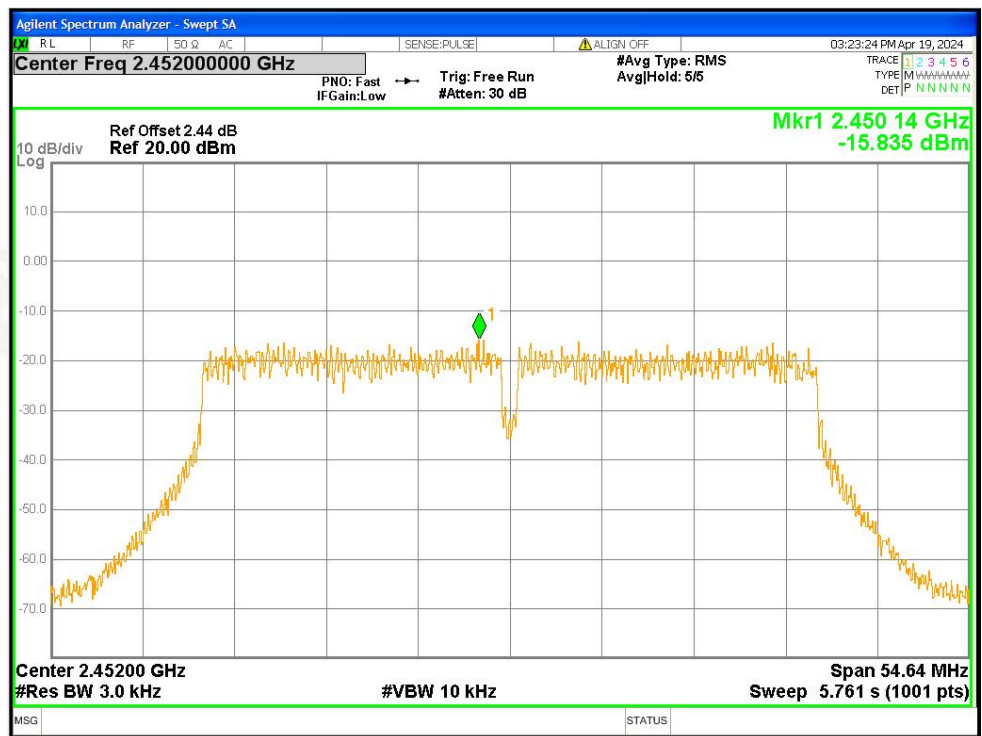
PSD NVNT n20 2462MHz Ant1



PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1



7. CHANNEL 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	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

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

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

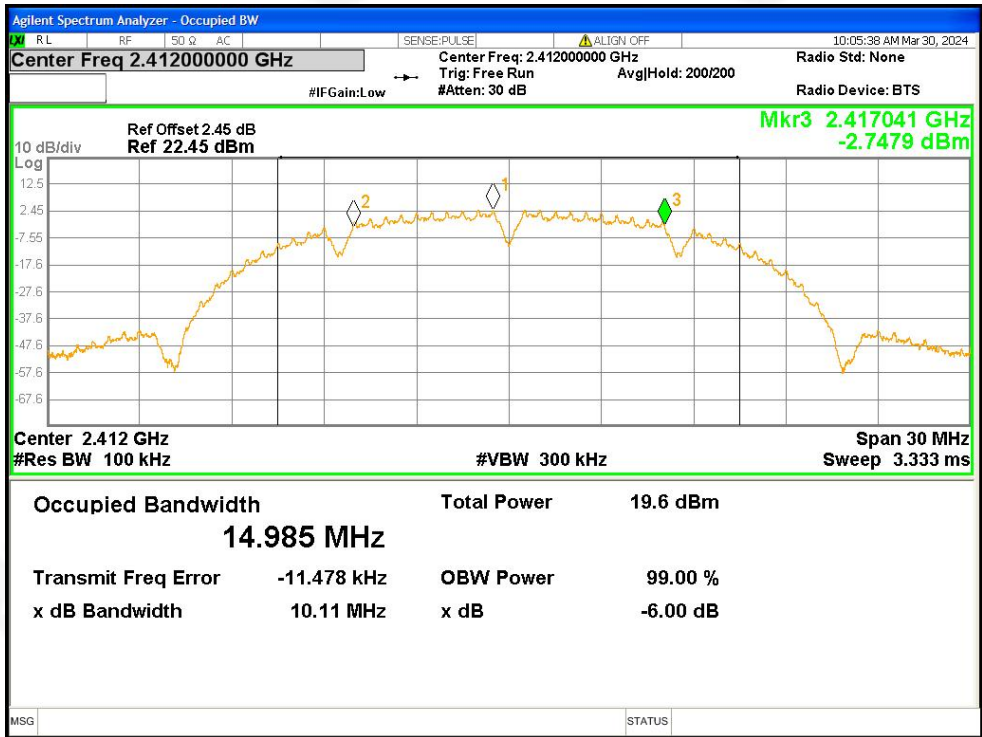
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



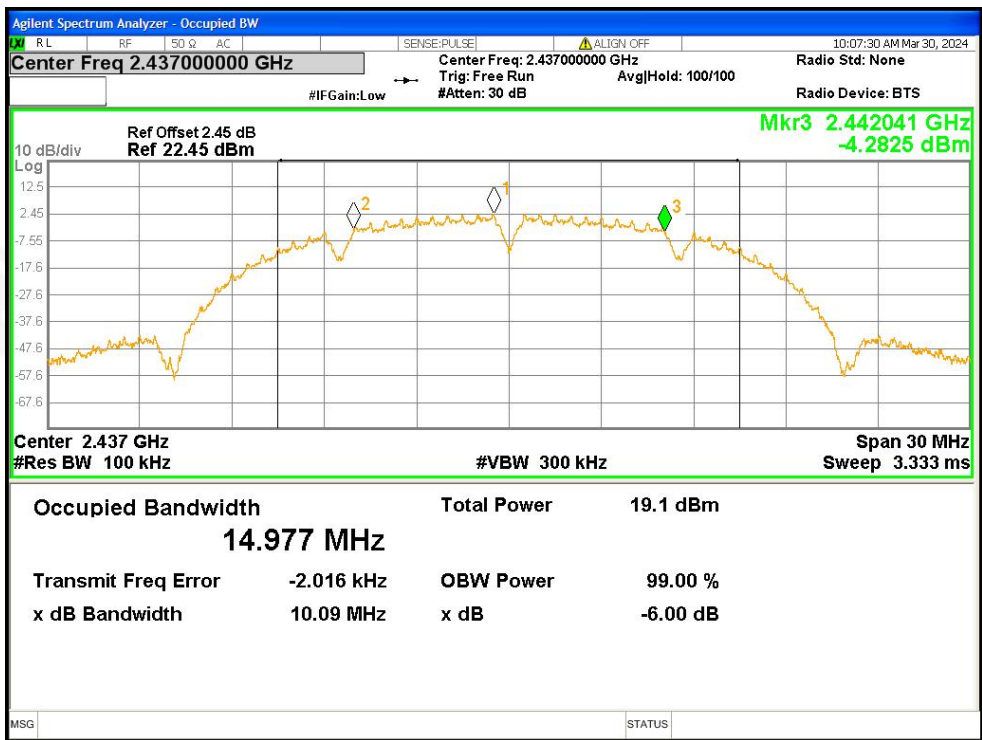
7.6 TEST RESULT

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant0	10.106	0.5	Pass
b	2437	Ant0	10.086	0.5	Pass
b	2462	Ant0	10.096	0.5	Pass
g	2412	Ant0	16.505	0.5	Pass
g	2437	Ant0	16.542	0.5	Pass
g	2462	Ant0	16.507	0.5	Pass
n20	2412	Ant0	17.627	0.5	Pass
n20	2437	Ant0	17.642	0.5	Pass
n20	2462	Ant0	17.683	0.5	Pass
n40	2422	Ant0	36.415	0.5	Pass
n40	2437	Ant0	36.419	0.5	Pass
n40	2452	Ant0	36.403	0.5	Pass

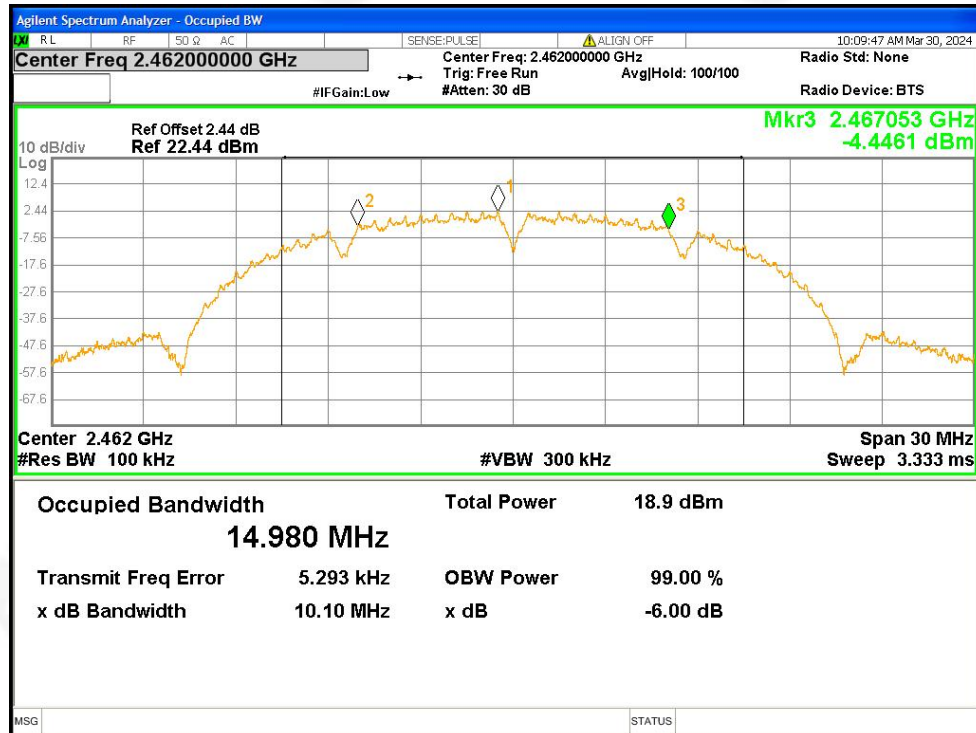
Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
b	2412	Ant1	10.107	0.5	Pass
b	2437	Ant1	10.086	0.5	Pass
b	2462	Ant1	10.106	0.5	Pass
g	2412	Ant1	16.506	0.5	Pass
g	2437	Ant1	16.542	0.5	Pass
g	2462	Ant1	16.545	0.5	Pass
n20	2412	Ant1	17.654	0.5	Pass
n20	2437	Ant1	17.678	0.5	Pass
n20	2462	Ant1	17.656	0.5	Pass
n40	2422	Ant1	36.408	0.5	Pass
n40	2437	Ant1	36.39	0.5	Pass
n40	2452	Ant1	36.426	0.5	Pass



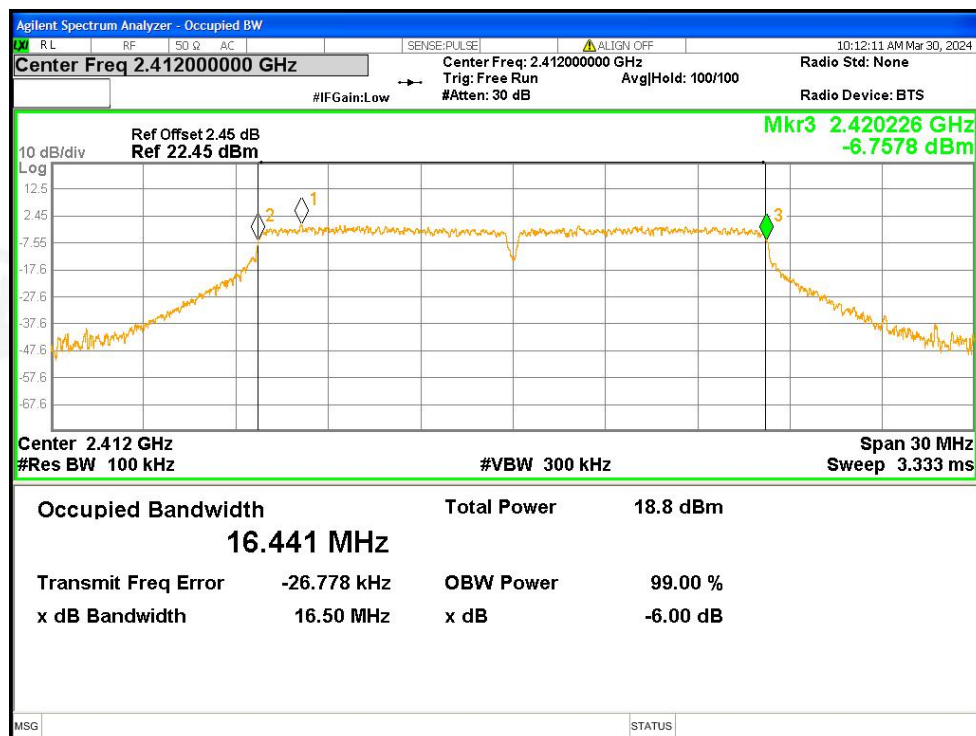
-6dB Bandwidth NVNT b 2412MHz Ant0



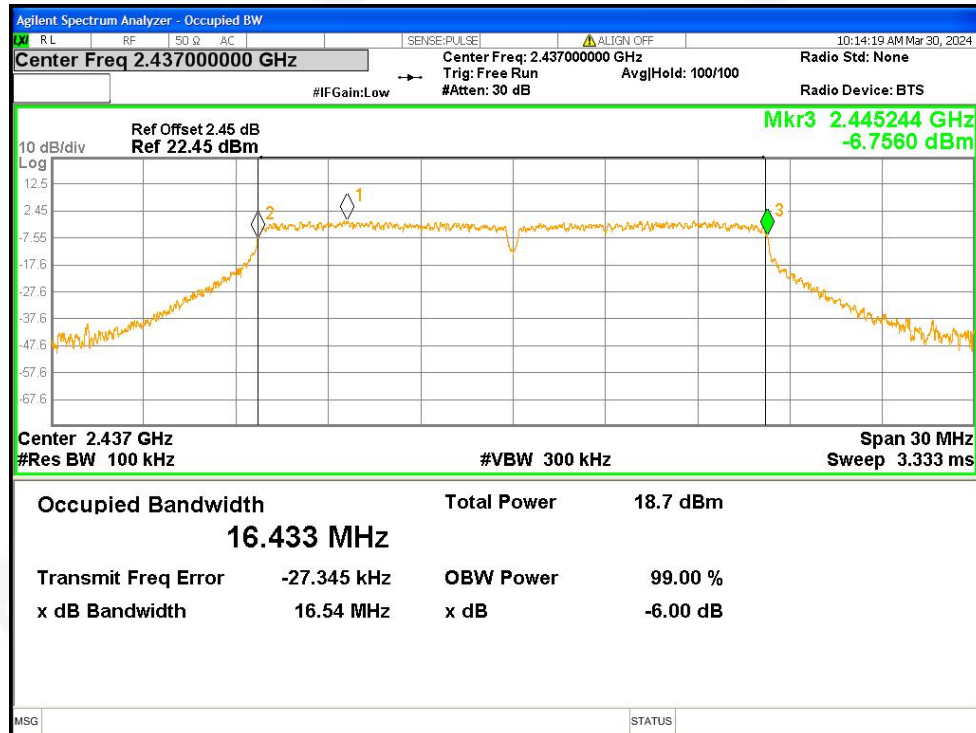
-6dB Bandwidth NVNT b 2437MHz Ant0



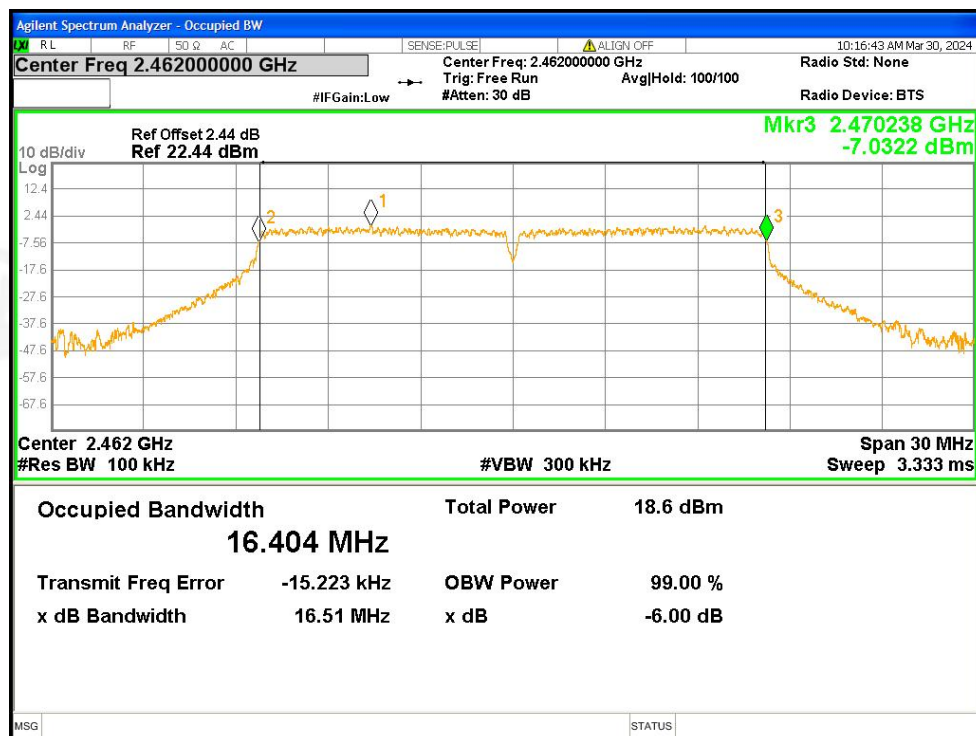
-6dB Bandwidth NVNT b 2462MHz Ant0



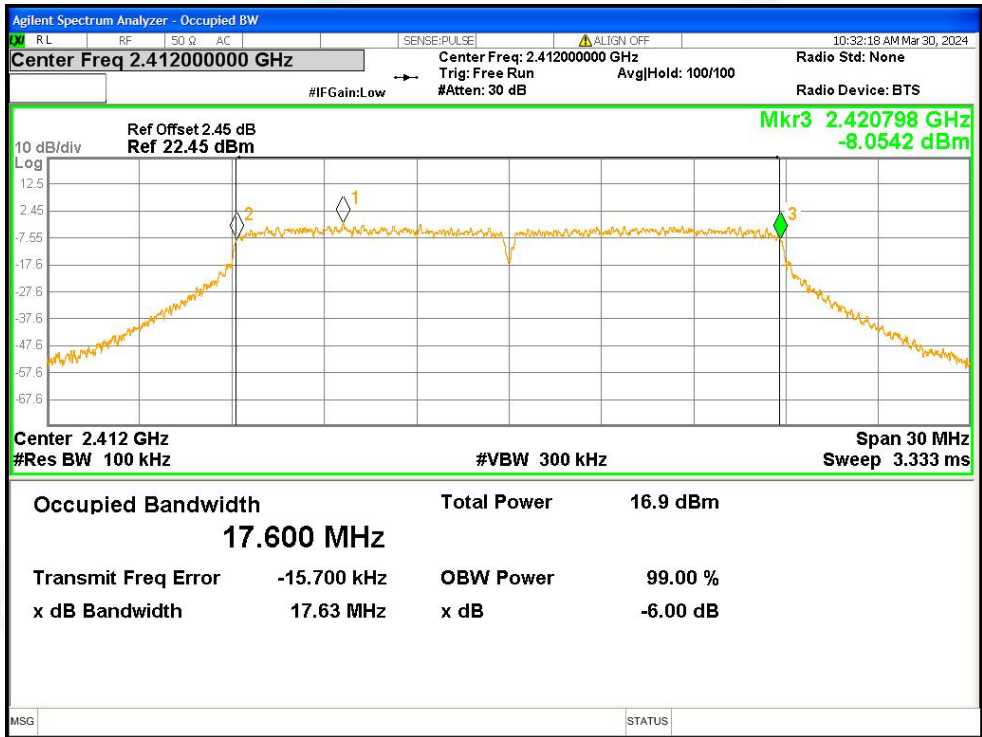
-6dB Bandwidth NVNT g 2412MHz Ant0



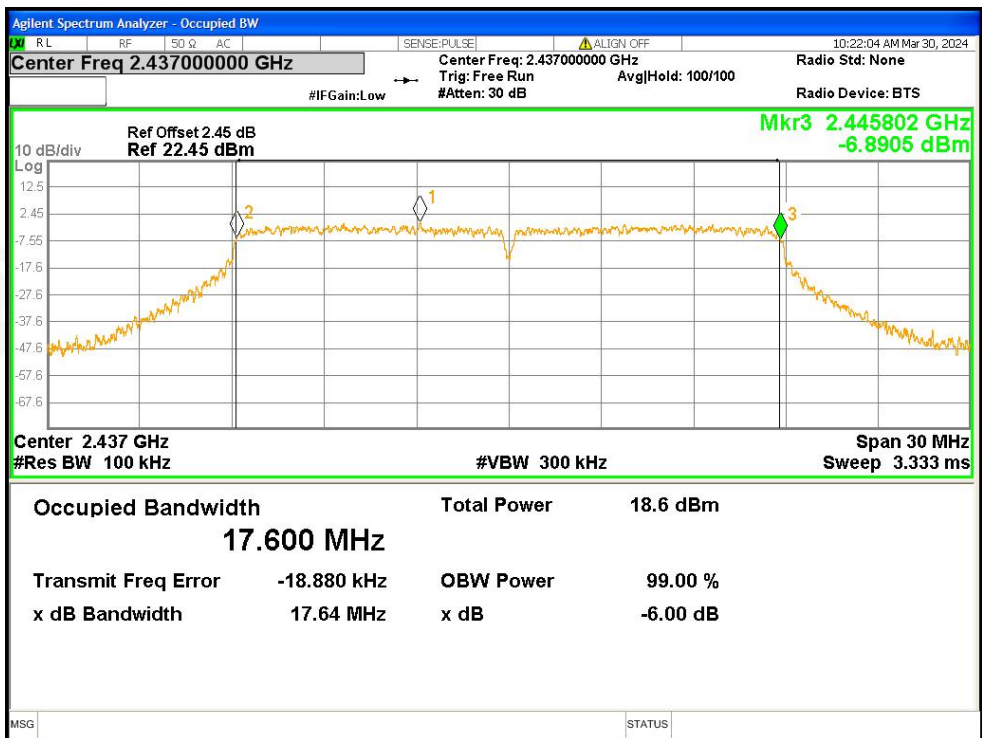
-6dB Bandwidth NVNT g 2437MHz Ant0



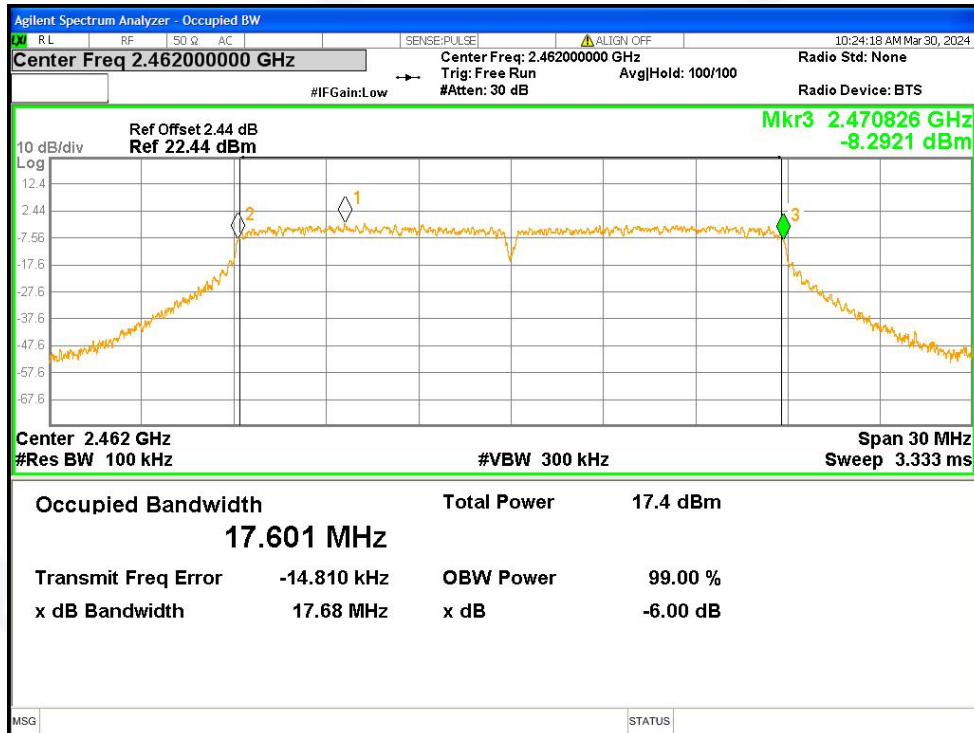
-6dB Bandwidth NVNT g 2462MHz Ant0



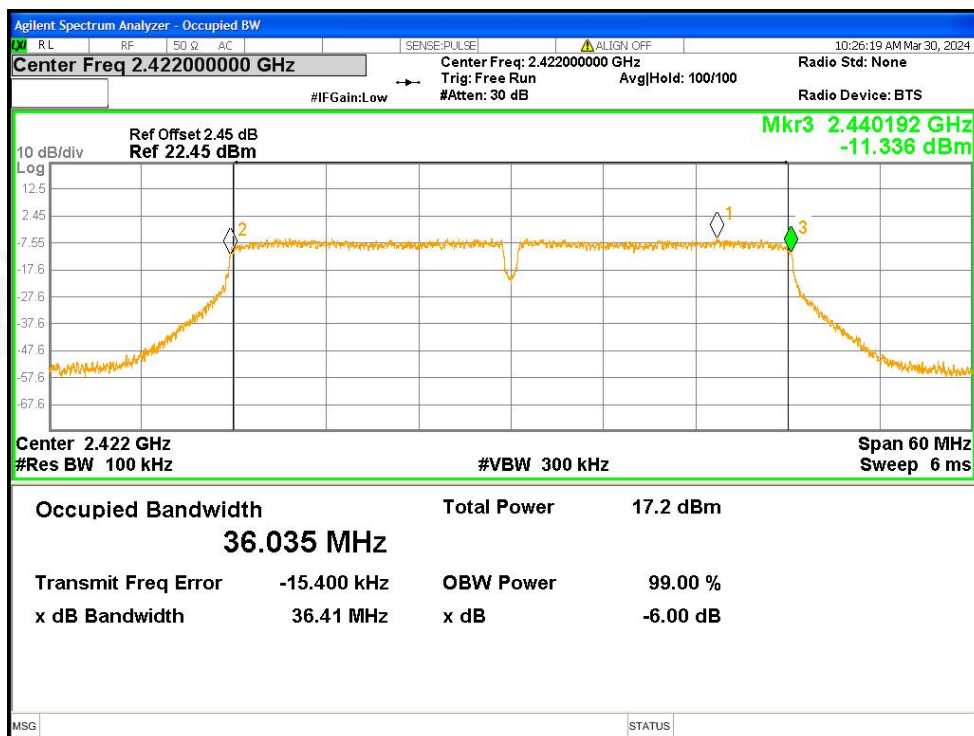
-6dB Bandwidth NVNT n20 2412MHz Ant0



-6dB Bandwidth NVNT n20 2437MHz Ant0



-6dB Bandwidth NVNT n20 2462MHz Ant0



-6dB Bandwidth NVNT n40 2422MHz Ant0