FCC C2PC Test Report

FCC ID	:	**MXF-WAPQ-245**
Equipment	:	**Router**
Model No.	:	**AC3000**
Brand Name	:	**Onelink**
Applicant	:	**Gemtek Technology Co., Ltd.**
Address	:	**No.15-1 Zhoughua Rd, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Mar. 29, 2019**
Tested Date	:	**Nov. 13 ~ Nov. 15, 2018 (for original test)** **Apr. 12 ~ Jun. 06, 2019 (for new test)**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

Table of Contents

1 GENERAL DESCRIPTION 5

1.1 Information 5
1.2 Local Support Equipment List 8
1.3 Test Setup Chart 9
1.4 The Equipment List 11
1.5 Test Standards 12
1.6 Deviation from Test Standard and Measurement Procedure 12
1.7 Measurement Uncertainty 13

2 TEST CONFIGURATION 14

2.1 Testing Condition 14
2.2 The Worst Test Modes and Channel Details 14

3 TRANSMITTER TEST RESULTS 15

3.1 Conducted Emissions 15
3.2 6dB and Occupied Bandwidth 20
3.3 RF Output Power 29
3.4 Power Spectral Density 32
3.5 Unwanted Emissions into Restricted Frequency Bands 41
3.6 Emissions in Non-Restricted Frequency Bands 83

4 TEST LABORATORY INFORMATION 90

Release Record

Report No.	Version	Description	Issued Date
FR8O3101-01AC	Rev. 01	Initial issue	Aug. 02, 2019

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.381MHz 36.27 (Margin -11.98dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2390.00MHz 52.94 (Margin -1.06dB) - AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 23.29 ***Beamforming mode*** 23.00	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

This is a Class II Permissive Change report (C2PC).
This report is issued as a duplicate report to the original ICC report no. FR8O3101AC. . The difference is concerned with following items:

- ✧ Antenna change and enable beamforming function for 2.4GHz UNII band 1 and 3 by software setting
- ✧ Hardware minor change of non-RF PCB layout is to reserve coexistence function.

Previous version of hardware: V03A
Current version (Re-layout) of hardware: V04

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
2400-2483.5	ac (VHT20)	2412-2462	1-11 [11]	2	MCS 0-9
2400-2483.5	ac (VHT40)	2422-2452	3-9 [7]	2	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.. Note 4: 802.11ac supports beamforming function.					

1.1.2 Antenna Details

Ant. No.	Model	Type	Gain (dBi)	Connector
1	2.4GHz,G1	PIFA	2.8	UFL
2	2.4GHz,G2	PIFA	2.5	UFL

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC Adapter	Brand: APD Model: WB-24J12FU Power Rating: I/P: 100-120Vac, 60Hz, 0.7A Max O/P: 12Vdc, 2.0A Power Line: 1.8m non-shielded cable w/o core
2	RJ45 cable (white)	1.45m non-shielded cable w/o core

1.1.5 Channel List

Frequency band (MHz)		**2400~2483.5**	
802.11 b / g / n HT20 / ac VHT20		**802.11n HT40 / ac VHT40**	
Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
1	2412	3	2422
2	2417	4	2427
3	2422	5	2432
4	2427	6	2437
5	2432	7	2442
6	2437	8	2447
7	2442	9	2452
8	2447	---	---
9	2452	---	---
10	2457	---	---
11	2462	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	QCRT, V3.0.298.0				
Duty Cycle and Duty Factor	**Mode**	**Non-beamforming**		**Beamforming**	
		Duty cycle (%)	**Duty factor (dB)**	**Duty cycle (%)**	**Duty factor (dB)**
	11b	100.00%	0.00	---	---
	11g	96.97%	0.13	---	---
	VHT20	99.06%	0.04	92.19%	0.35
	VHT40	97.25%	0.12	92.08%	0.36

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		Non-beamforming	Beamforming
11b	2412	19.5	---
11b	2437	19	---
11b	2462	20	---
11g	2412	18	---
11g	2437	19.5	---
11g	2462	18.5	---
VHT20	2412	18	21
VHT20	2437	20	24
VHT20	2462	18.5	22
VHT40	2422	17	20
VHT40	2437	18.5	22
VHT40	2452	17.5	21

1.2 Local Support Equipment List

Non-beamforming mode

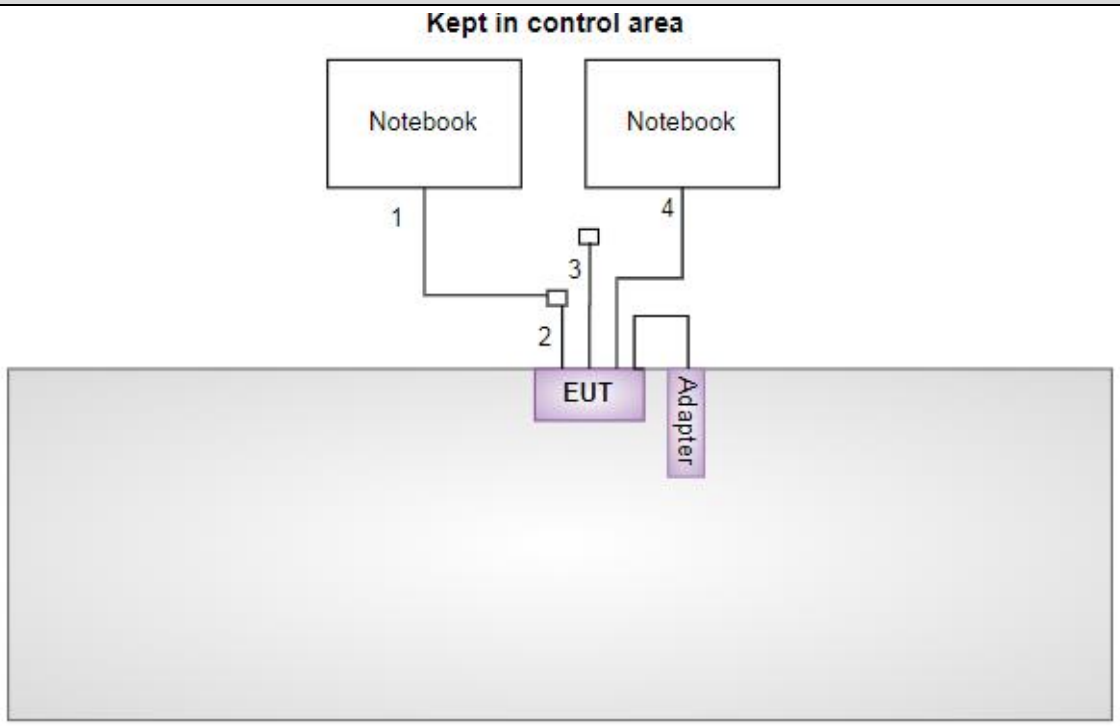
Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---
2	Notebook	DELL	Latitude E5470	DoC	---
3	RJ45 load	ICC	---	---	---

Beamforming mode

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---
2	Notebook	DELL	Latitude E5470	DoC	---
3	Notebook	DELL	Latitude E5470	DoC	---
4	RJ45 load	ICC	---	---	---
5	Beamforming	---	T4011	---	Provided by applicant.

1.3 Test Setup Chart

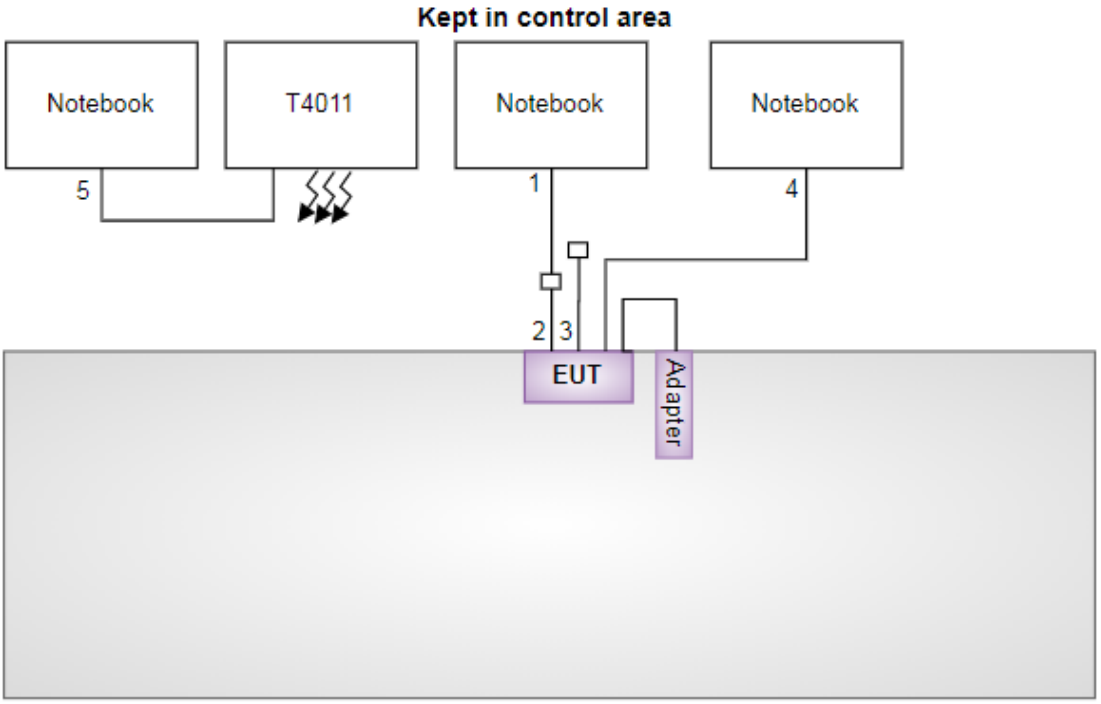
Non-beamforming mode

Test Setup Diagram


No.	Signal cable / Length (m)
1	RJ45, 10m non-shielded.
2	RJ45, 1.45m non-shielded.
3	RJ45, 1m non-shielded with load.
4	RJ45, 10m non-shielded.

Beamforming mode

Test Setup Diagram



No.	Signal cable / Length (m)
1	RJ45, 10m non-shielded.
2	RJ45, 1.45m non-shielded.
3	RJ45, 1m non-shielded with load.
4	RJ45, 10m non-shielded.
5	RJ45, 1m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	May 30, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
LISN	R&S	ENV216	101579	Mar. 08, 2019	Mar. 07, 2020
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 23, 2018	Oct. 23, 2019
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 1 / (03CH01-WS)				
Tested Date	Apr. 12 ~ May 24, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 27, 2018	Dec. 26, 2019
Receiver	R&S	ESR3	101658	Dec. 11, 2018	Dec. 10, 2019
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 18, 2018	Jul. 17, 2019
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 18, 2018	Dec. 17, 2019
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2018	Nov. 14, 2019
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 09, 2018	Nov. 08, 2019
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 08, 2018	Oct. 07, 2019
Preamplifier	EMC	EMC02325	980225	Jul. 20, 2018	Jul. 19, 2019
Preamplifier	Agilent	83017A	MY39501308	Oct. 04, 2018	Oct. 03, 2019
Preamplifier	EMC	EMC184045B	980192	Aug. 09, 2018	Aug. 08, 2019
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 08, 2018	Oct. 07, 2019
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 08, 2018	Oct. 07, 2019
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 08, 2018	Oct. 07, 2019
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 08, 2018	Oct. 07, 2019
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 08, 2018	Oct. 07, 2019
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 08, 2018	Oct. 07, 2019
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jun. 04 ~ Jun. 06, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 17, 2019	Apr. 16, 2020
Power Meter	Anritsu	ML2495A	1241002	Oct. 09, 2018	Oct. 08, 2019
Power Sensor	Anritsu	MA2411B	1207366	Oct. 09, 2018	Oct. 08, 2019
AC POWER SOURCE	APC	AFC-500W	F312060012	Nov. 29, 2018	Nov. 28, 2019
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Nov. 13 ~ Nov. 15, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 16, 2018	Apr. 15, 2019
Power Meter	Anritsu	ML2495A	1241002	Oct. 09, 2018	Oct. 08, 2019
Power Sensor	Anritsu	MA2411B	1207366	Oct. 09, 2018	Oct. 08, 2019
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 01, 2017	Nov. 30, 2018
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247
ANSI C63.10-2013
FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	21°C / 64%	Alex Tsai
Radiated Emissions	03CH01-WS	23°C / 64-66%	Akun Chung Aska Huang
RF Conducted	TH01-WS	22°C / 64%	Roger Lu Aska Huang

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11b	2462	1 Mbps	---
Radiated Emissions ≤1GHz	11b	2462	1 Mbps	---
Maximum Output Power	11b 11g VHT20 VHT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	---
Radiated Emissions >1GHz 6dB bandwidth Power spectral density	11b 11g VHT20 VHT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	---

Beamforming mode

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	VHT40	2437	MCS 0	---
Radiated Emissions ≤1GHz	VHT40	2437	MCS 0	---
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	VHT20 VHT40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	---

3 Transmitter Test Results

3.1 Conducted Emissions

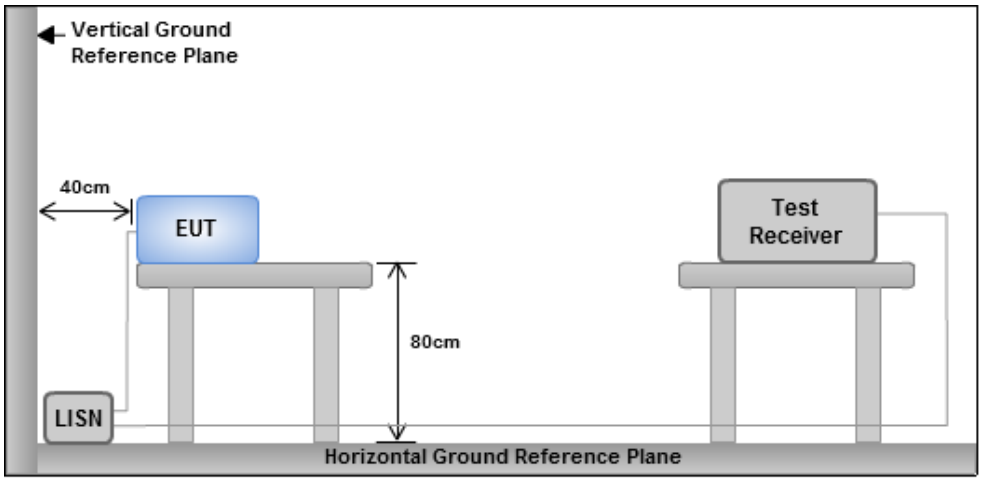
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

3.1.3 Test Setup

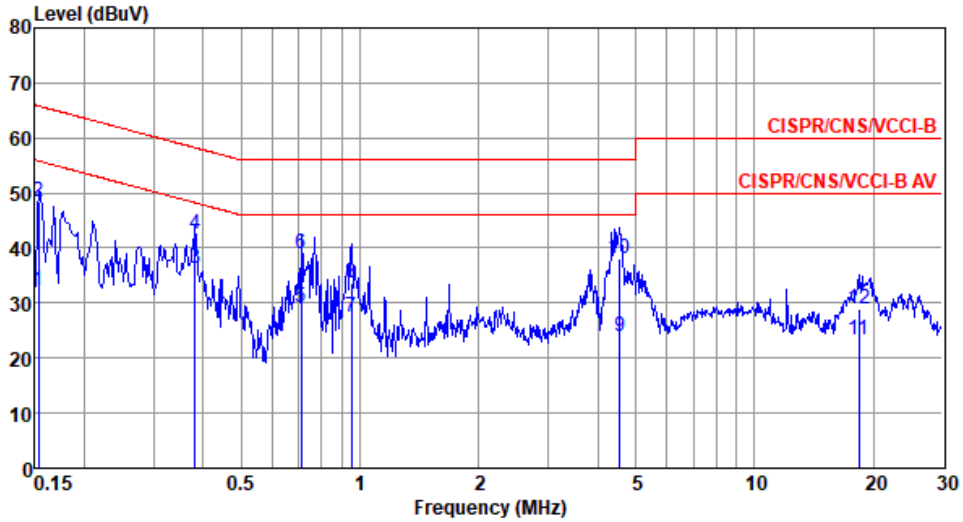


Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Non-beamforming mode

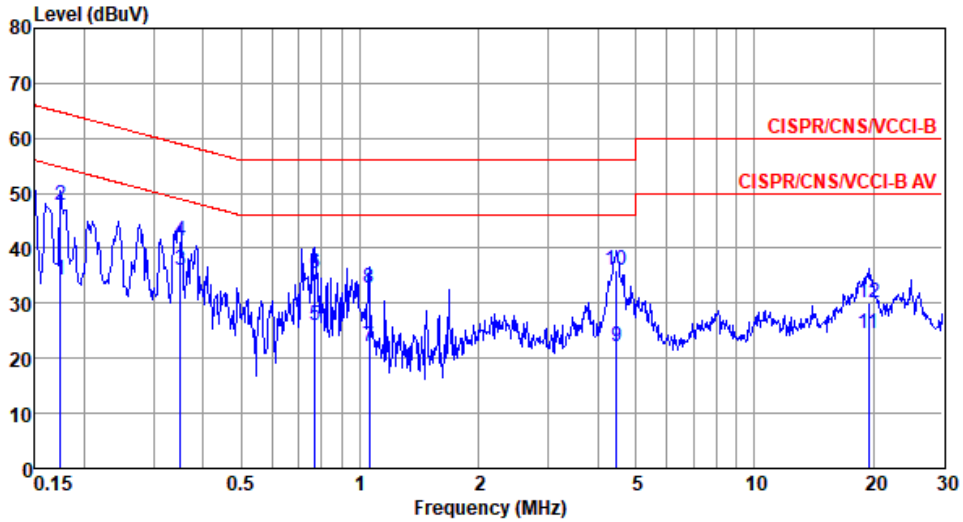
Modulation	11b	**Test Freq. (MHz)**	2462
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.153	32.15	55.82	-23.67	22.44	9.53	0.05	Average
2	0.153	48.33	65.82	-17.49	38.62	9.53	0.05	QP
3*	0.381	36.27	48.25	-11.98	26.36	9.57	0.08	Average
4	0.381	42.42	58.25	-15.83	32.51	9.57	0.08	QP
5	0.708	29.25	46.00	-16.75	19.29	9.59	0.09	Average
6	0.708	39.11	56.00	-16.89	29.15	9.59	0.09	QP
7	0.953	27.37	46.00	-18.63	17.37	9.60	0.10	Average
8	0.953	33.52	56.00	-22.48	23.52	9.60	0.10	QP
9	4.549	23.83	46.00	-22.17	13.53	9.62	0.30	Average
10	4.549	37.95	56.00	-18.05	27.65	9.62	0.30	QP
11	18.426	23.33	50.00	-26.67	12.51	9.66	0.59	Average
12	18.426	28.84	60.00	-31.16	18.02	9.66	0.59	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	11b	Test Freq. (MHz)	2462
Power Phase	Neutral		

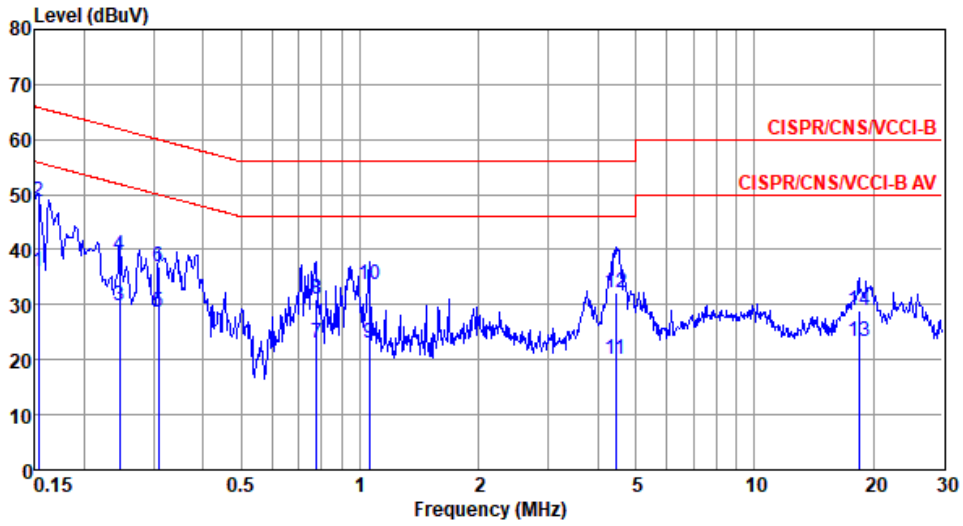


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.174	34.37	54.77	-20.40	24.60	9.58	0.06	Average
2	0.174	47.70	64.77	-17.07	37.93	9.58	0.06	QP
3*	0.350	35.88	48.96	-13.08	26.08	9.60	0.08	Average
4	0.350	41.34	58.96	-17.62	31.54	9.60	0.08	QP
5	0.767	25.89	46.00	-20.11	15.97	9.63	0.09	Average
6	0.767	35.50	56.00	-20.50	25.58	9.63	0.09	QP
7	1.054	22.24	46.00	-23.76	12.27	9.64	0.10	Average
8	1.054	32.89	56.00	-23.11	22.92	9.64	0.10	QP
9	4.478	22.15	46.00	-23.85	11.92	9.67	0.30	Average
10	4.478	35.87	56.00	-20.13	25.64	9.67	0.30	QP
11	19.428	24.64	50.00	-25.36	13.78	9.81	0.60	Average
12	19.428	30.20	60.00	-29.80	19.34	9.81	0.60	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Beamforming mode

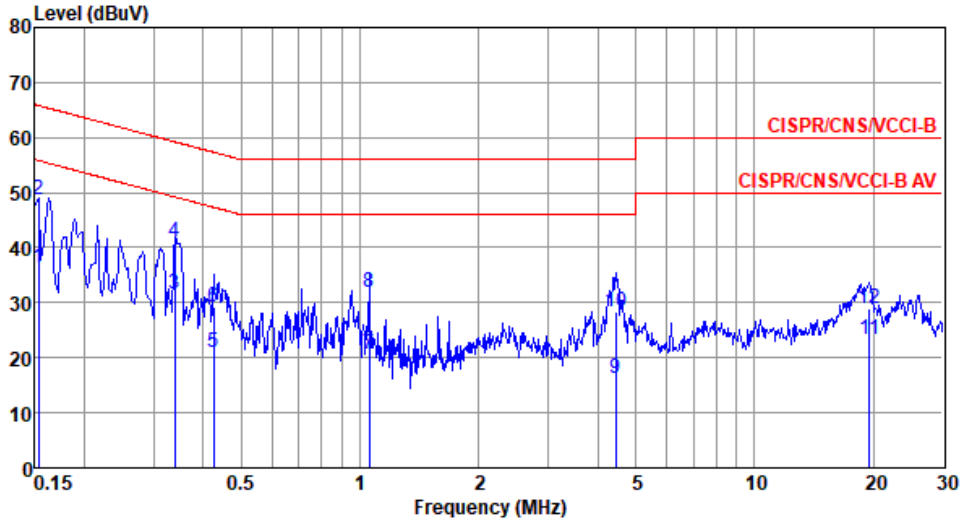
Modulation	VHT40	**Test Freq. (MHz)**	2437
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.153	36.03	55.82	-19.79	26.32	9.53	0.05	Average
2*	0.153	48.78	65.82	-17.04	39.07	9.53	0.05	QP
3	0.246	29.77	51.91	-22.14	19.94	9.55	0.07	Average
4	0.246	38.85	61.91	-23.06	29.02	9.55	0.07	QP
5	0.308	28.77	50.02	-21.25	18.90	9.56	0.08	Average
6	0.308	36.78	60.02	-23.24	26.91	9.56	0.08	QP
7	0.775	22.90	46.00	-23.10	12.93	9.59	0.09	Average
8	0.775	30.91	56.00	-25.09	20.94	9.59	0.09	QP
9	1.054	22.98	46.00	-23.02	12.98	9.60	0.10	Average
10	1.054	33.58	56.00	-22.42	23.58	9.60	0.10	QP
11	4.454	20.21	46.00	-25.79	9.92	9.61	0.30	Average
12	4.454	32.14	56.00	-23.86	21.85	9.61	0.30	QP
13	18.426	23.40	50.00	-26.60	12.58	9.66	0.59	Average
14	18.426	28.93	60.00	-31.07	18.11	9.66	0.59	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	VHT40	Test Freq. (MHz)	2437
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.153	36.41	55.82	-19.41	26.68	9.57	0.05	Average
2*	0.153	48.65	65.82	-17.17	38.92	9.57	0.05	QP
3	0.339	31.53	49.22	-17.69	21.73	9.60	0.08	Average
4	0.339	40.94	59.22	-18.28	31.14	9.60	0.08	QP
5	0.426	20.98	47.33	-26.35	11.16	9.61	0.08	Average
6	0.426	29.09	57.33	-28.24	19.27	9.61	0.08	QP
7	1.054	20.79	46.00	-25.21	10.82	9.64	0.10	Average
8	1.054	31.96	56.00	-24.04	21.99	9.64	0.10	QP
9	4.454	16.19	46.00	-29.81	5.96	9.67	0.30	Average
10	4.454	28.37	56.00	-27.63	18.14	9.67	0.30	QP
11	19.532	23.19	50.00	-26.81	12.33	9.81	0.60	Average
12	19.532	28.80	60.00	-31.20	17.94	9.81	0.60	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

3.2 6dB and Occupied Bandwidth

3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.2.2 Test Procedures

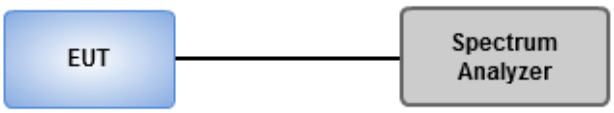
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3 Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.2.3 Test Setup



3.2.4 Test Result of 6dB and Occupied Bandwidth

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	8.043M	12.88M	12M9G1D	8.043M	12.735M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.425M	16M4D1D	16.304M	16.353M
802.11ac VHT20_Nss1,(MCS0)_2TX	17.609M	17.656M	17M7D1D	17.246M	17.583M
802.11ac VHT40_Nss1,(MCS0)_2TX	35.362M	35.89M	35M9D1D	32.899M	35.745M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

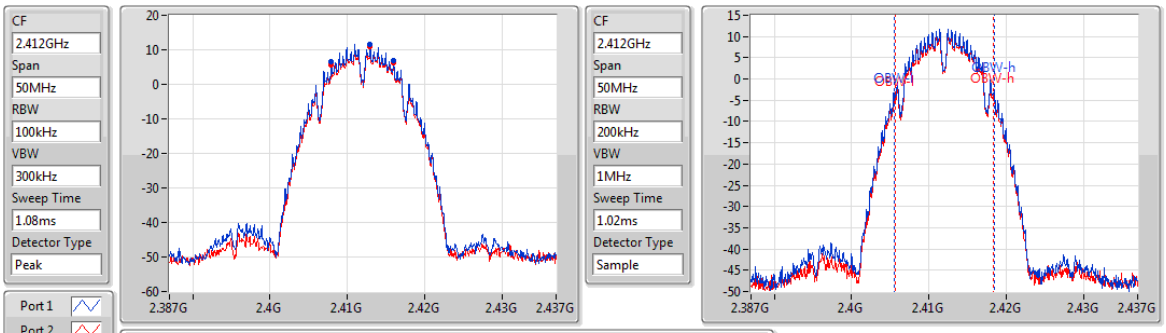
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	8.043M	12.88M	8.043M	12.735M
2437MHz	Pass	500k	8.043M	12.808M	8.043M	12.808M
2462MHz	Pass	500k	8.043M	12.88M	8.043M	12.735M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.377M	16.425M	16.377M	16.425M
2437MHz	Pass	500k	16.304M	16.425M	16.304M	16.353M
2462MHz	Pass	500k	16.377M	16.425M	16.377M	16.425M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.536M	17.583M	17.609M	17.583M
2437MHz	Pass	500k	17.609M	17.656M	17.246M	17.583M
2462MHz	Pass	500k	17.536M	17.583M	17.609M	17.583M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	35.072M	35.89M	34.058M	35.745M
2437MHz	Pass	500k	35.362M	35.89M	33.913M	35.89M
2452MHz	Pass	500k	33.478M	35.89M	32.899M	35.89M

Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

802.11b_Nss1,(1Mbps)_2TX EBW

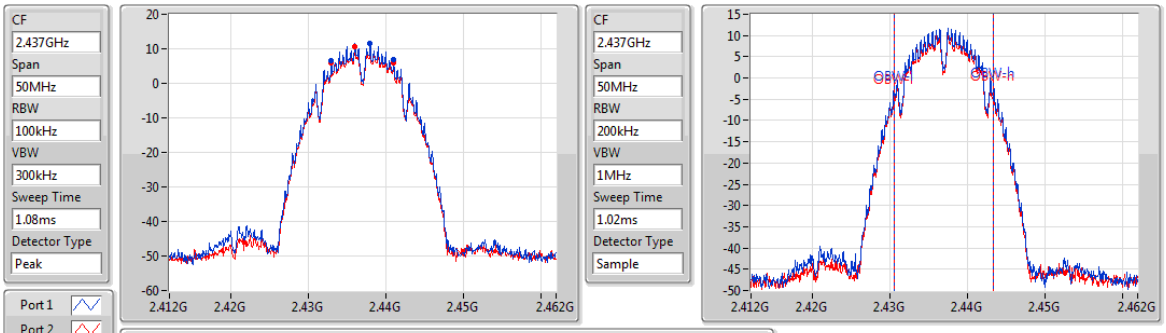
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.043M	2.407942G	2.415986G	12.88M	2.40556G	2.41844G	500k	1
8.043M	2.407942G	2.415986G	12.735M	2.405632G	2.418368G	500k	2

802.11b_Nss1,(1Mbps)_2TX EBW

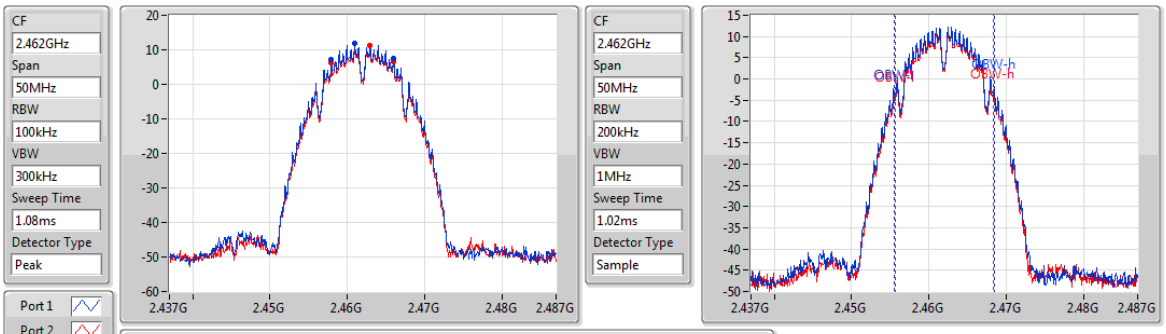
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.043M	2.432942G	2.440986G	12.808M	2.43056G	2.443368G	500k	1
8.043M	2.432942G	2.440986G	12.808M	2.43056G	2.443368G	500k	2

802.11b_Nss1,(1Mbps)_2TX EBW

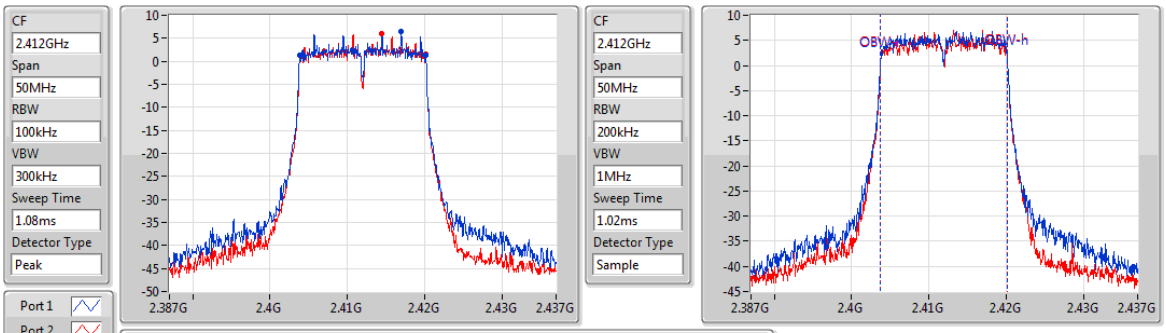
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
8.043M	2.457942G	2.465986G	12.88M	2.45556G	2.46844G	500k	1
8.043M	2.457942G	2.465986G	12.735M	2.455632G	2.468368G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

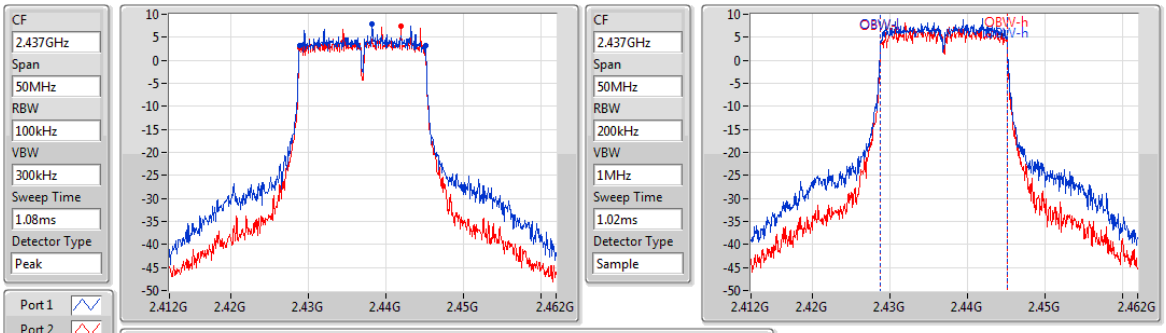
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.403812G	2.420188G	16.425M	2.403751G	2.420177G	500k	1
16.377M	2.403812G	2.420188G	16.425M	2.403751G	2.420177G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

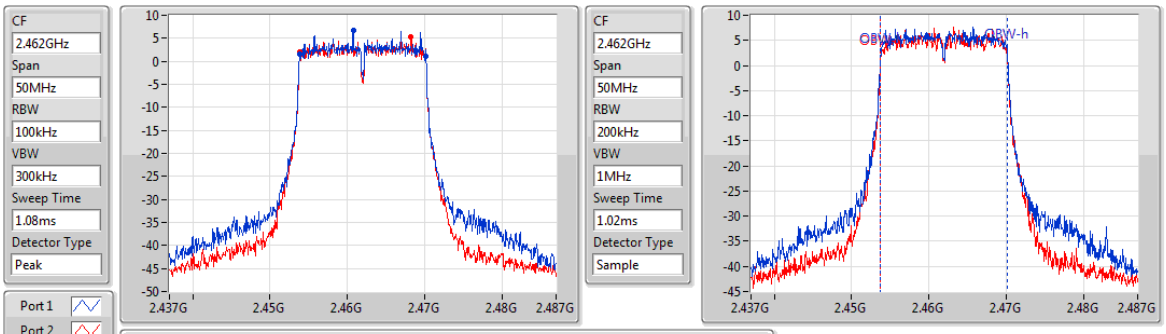
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.304M	2.428812G	2.445116G	16.425M	2.428751G	2.445177G	500k	1
16.304M	2.428812G	2.445116G	16.353M	2.428751G	2.445104G	500k	2

802.11g_Nss1,(6Mbps)_2TX EBW

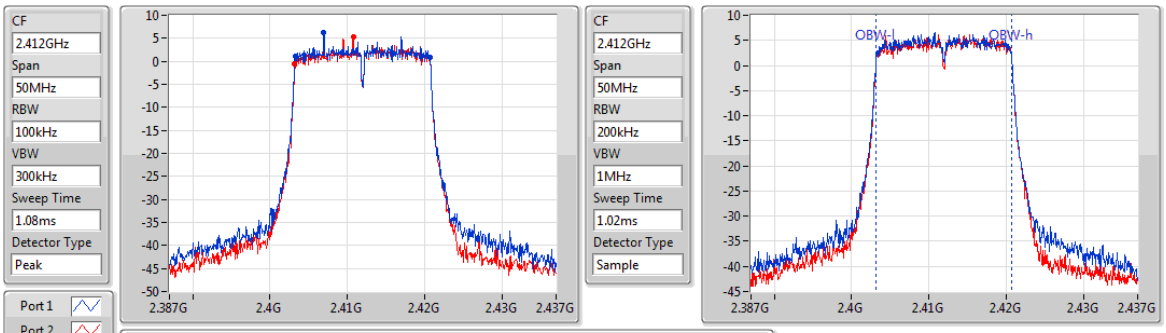
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.453812G	2.470188G	16.425M	2.453751G	2.470177G	500k	1
16.377M	2.453812G	2.470188G	16.425M	2.453751G	2.470177G	500k	2

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

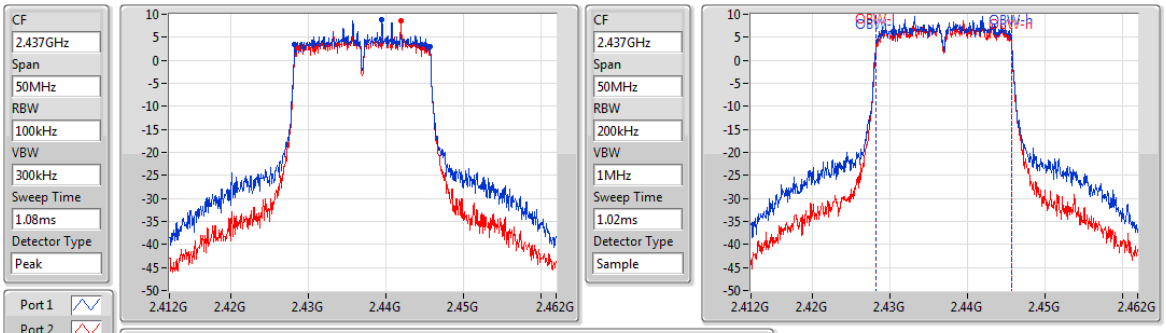
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.536M	2.403232G	2.420768G	17.583M	2.403172G	2.420755G	500k	1
17.609M	2.403159G	2.420768G	17.583M	2.403172G	2.420755G	500k	2

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

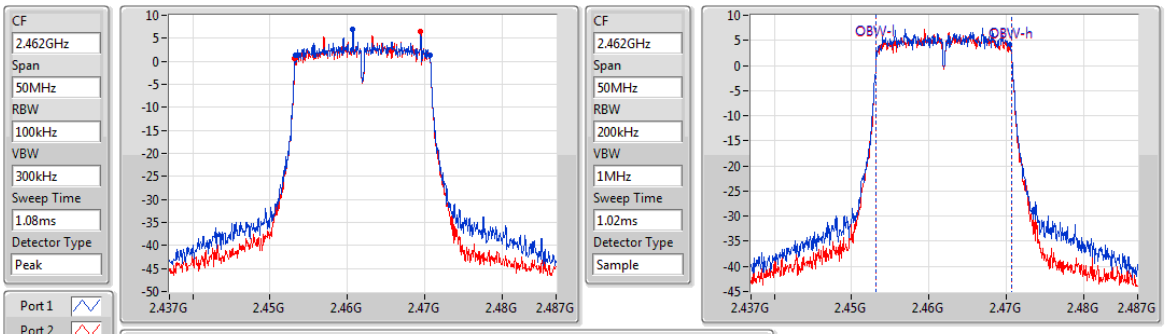
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.609M	2.428159G	2.445768G	17.656M	2.4281G	2.445755G	500k	1
17.246M	2.428522G	2.445768G	17.583M	2.428172G	2.445755G	500k	2

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

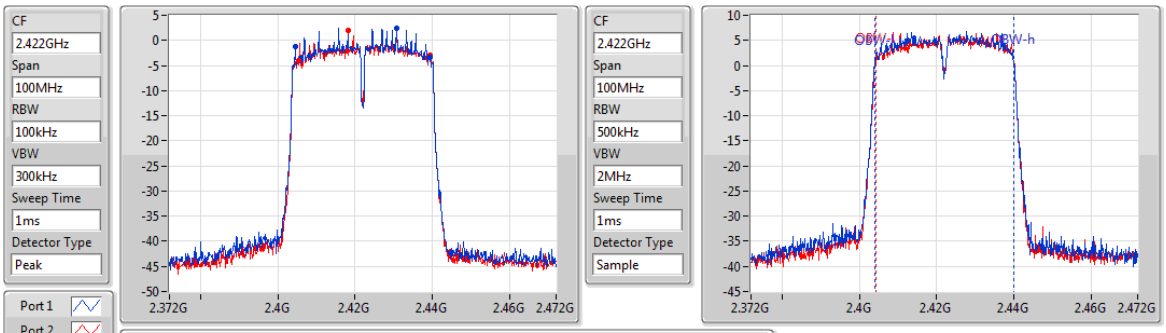
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.536M	2.453232G	2.470768G	17.583M	2.453172G	2.470755G	500k	1
17.609M	2.453159G	2.470768G	17.583M	2.453172G	2.470755G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

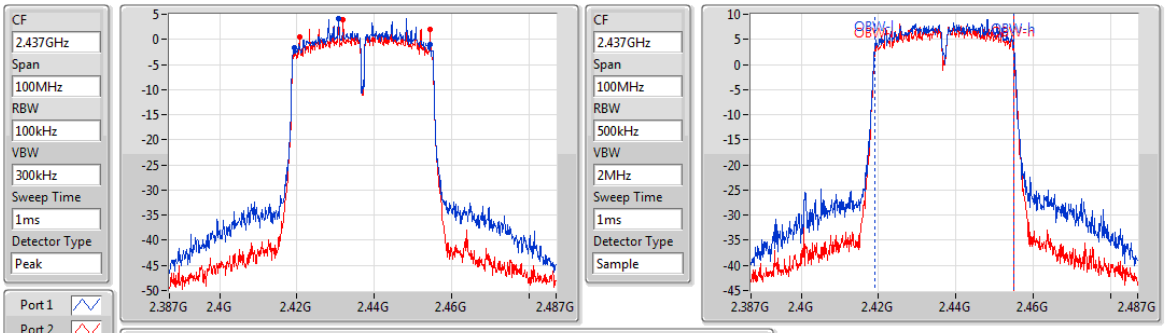
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.072M	2.404464G	2.439536G	35.89M	2.404055G	2.439945G	500k	1
34.058M	2.405478G	2.439536G	35.745M	2.4042G	2.439945G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

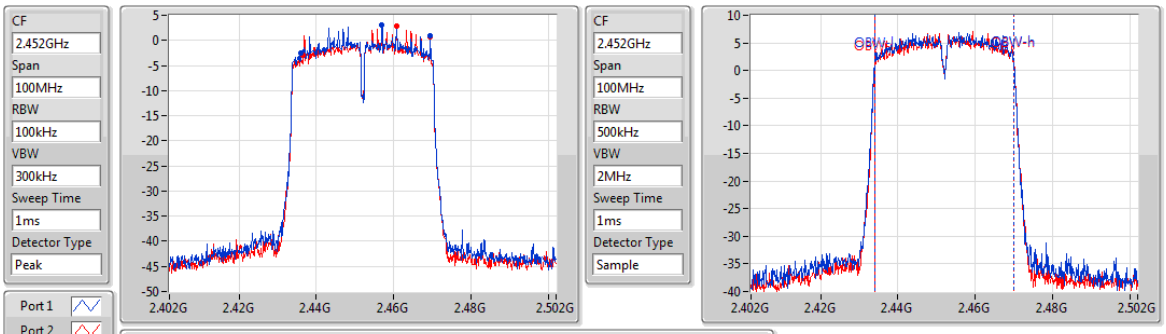
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.362M	2.419174G	2.454536G	35.89M	2.419055G	2.454945G	500k	1
33.913M	2.420623G	2.454536G	35.89M	2.419055G	2.454945G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
33.478M	2.436058G	2.469536G	35.89M	2.434055G	2.469945G	500k	1
32.899M	2.436638G	2.469536G	35.89M	2.434055G	2.469945G	500k	2

Beamforming mode

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	17.391M	17.583M	17M6D1D	13.841M	17.511M
802.11ac VHT40-BF _Nss1,(MCS0)_2TX	32.464M	35.89M	35M9D1D	25.797M	35.456M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

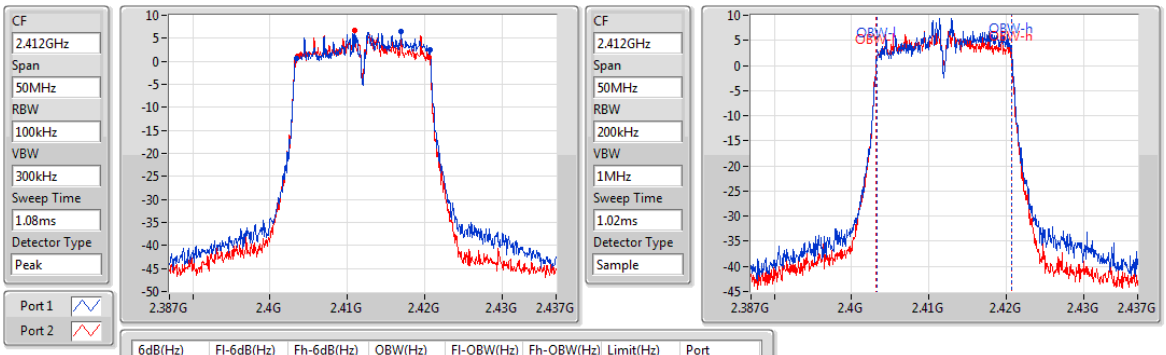
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ac VHT20-BF _Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.391M	17.511M	17.029M	17.583M
2437MHz	Pass	500k	13.841M	17.583M	17.174M	17.583M
2462MHz	Pass	500k	16.232M	17.583M	17.246M	17.583M
802.11ac VHT40-BF _Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	25.797M	35.456M	31.594M	35.745M
2437MHz	Pass	500k	28.986M	35.745M	30.145M	35.89M
2452MHz	Pass	500k	30.145M	35.745M	32.464M	35.601M

Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

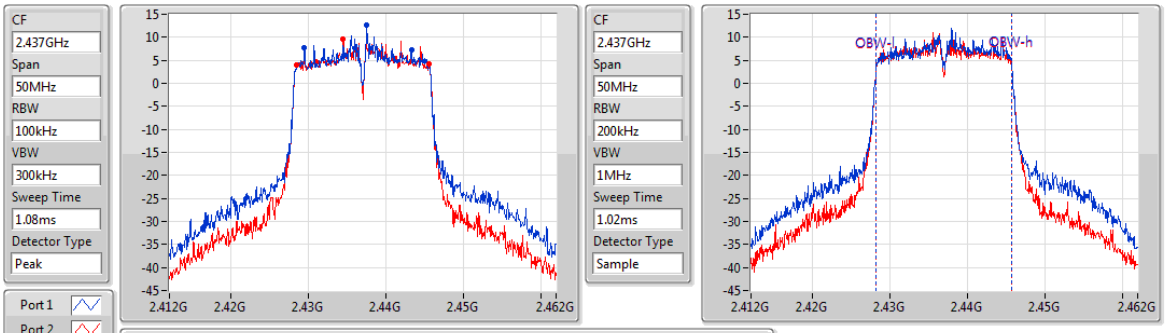
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.391M	2.403377G	2.420768G	17.511M	2.403245G	2.420755G	500k	1
17.029M	2.403594G	2.420623G	17.583M	2.403172G	2.420755G	500k	2

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

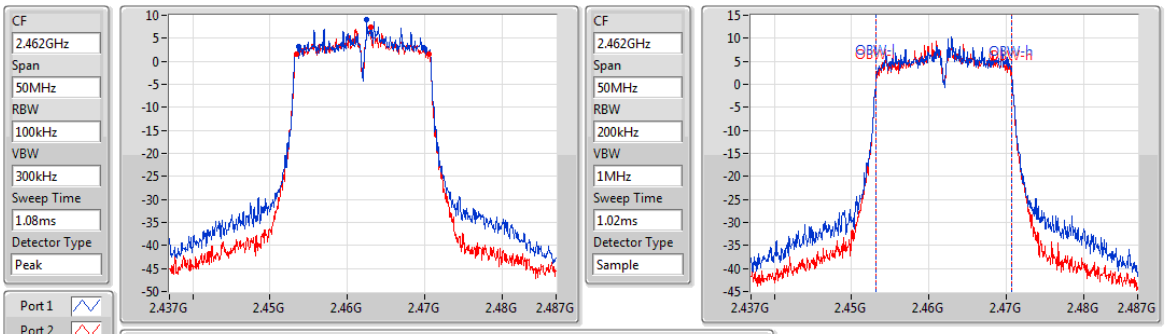
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
13.841M	2.429464G	2.443304G	17.583M	2.428172G	2.445755G	500k	1
17.174M	2.428449G	2.445623G	17.583M	2.428172G	2.445755G	500k	2

802.11ac VHT20_Nss1,(MCS0)_2TX EBW

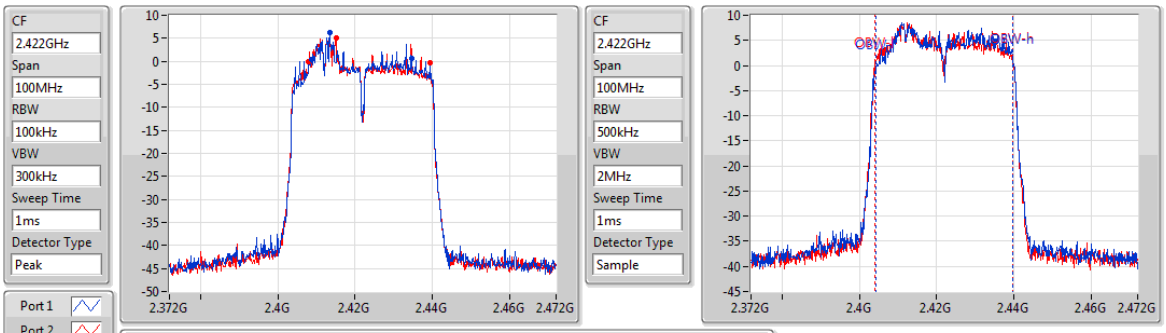
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.232M	2.453667G	2.469899G	17.583M	2.453172G	2.470755G	500k	1
17.246M	2.453377G	2.470623G	17.583M	2.453172G	2.470755G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

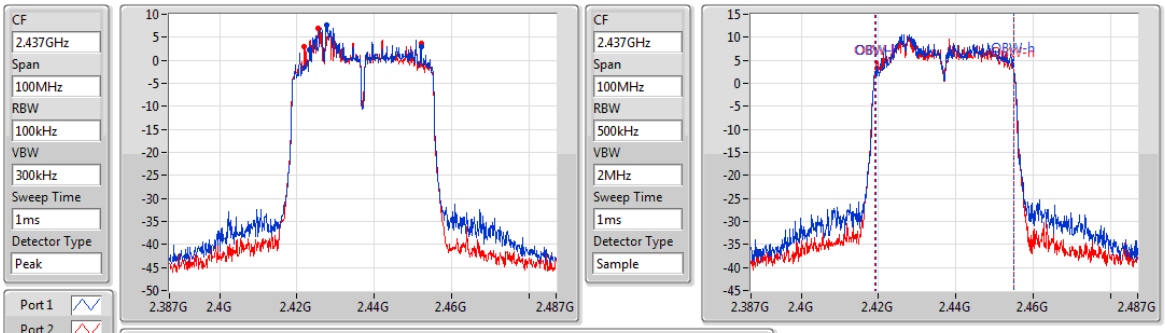
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
25.797M	2.408812G	2.434609G	35.456M	2.404344G	2.4398G	500k	1
31.594M	2.407942G	2.439536G	35.745M	2.404055G	2.4398G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

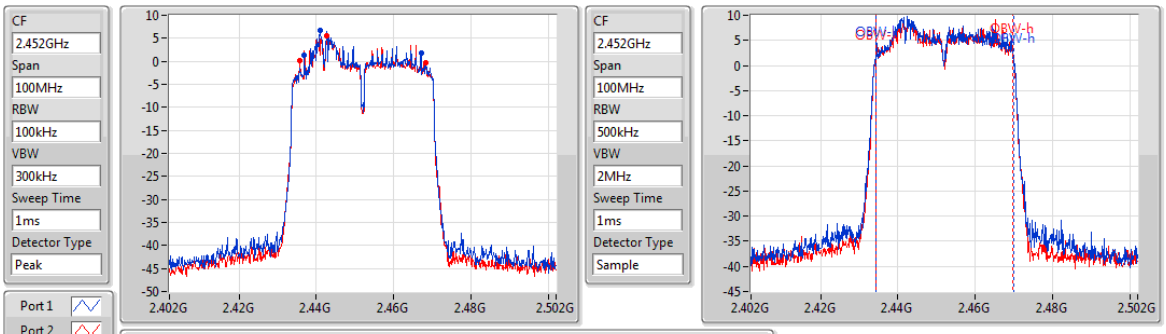
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
28.986M	2.423087G	2.452072G	35.745M	2.4192G	2.454945G	500k	1
30.145M	2.421928G	2.452072G	35.89M	2.419055G	2.454945G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX EBW

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
30.145M	2.436928G	2.467072G	35.745M	2.4342G	2.469945G	500k	1
32.464M	2.435768G	2.468232G	35.601M	2.4342G	2.4698G	500k	2

3.3 RF Output Power

3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

3.3.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.3.3 Test Setup

3.3.4 Test Result of Maximum Output Power

Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	23.29	0.21330
802.11g_Nss1,(6Mbps)_2TX	22.54	0.17947
802.11ac VHT20_Nss1,(MCS0)_2TX	23.02	0.20045
802.11ac VHT40_Nss1,(MCS0)_2TX	21.43	0.13900

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.80	20.02	19.47	22.76	30.00	25.56	36.00
2437MHz	Pass	2.80	19.62	18.92	22.29	30.00	25.09	36.00
2462MHz	Pass	2.80	20.63	19.89	23.29	30.00	26.09	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.80	17.95	17.94	20.96	30.00	23.76	36.00
2437MHz	Pass	2.80	19.83	19.21	22.54	30.00	25.34	36.00
2462MHz	Pass	2.80	18.51	18.34	21.44	30.00	24.24	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.80	17.94	17.93	20.95	30.00	23.75	36.00
2437MHz	Pass	2.80	20.27	19.73	23.02	30.00	25.82	36.00
2462MHz	Pass	2.80	18.42	18.33	21.39	30.00	24.19	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.80	16.59	16.49	19.55	30.00	22.35	36.00
2437MHz	Pass	2.80	18.73	18.09	21.43	30.00	24.23	36.00
2452MHz	Pass	2.80	17.16	16.95	20.07	30.00	22.87	36.00

DG = Directional Gain; **Port X** = Port X output power

Beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	23.00	0.19953
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	21.29	0.13459

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	5.66	17.74	17.56	20.66	30.00	26.32	36.00
2437MHz	Pass	5.66	20.15	19.82	23.00	30.00	28.66	36.00
2462MHz	Pass	5.66	18.54	18.11	21.34	30.00	27.00	36.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	5.66	16.45	15.91	19.20	30.00	24.86	36.00
2437MHz	Pass	5.66	18.51	18.03	21.29	30.00	26.95	36.00
2452MHz	Pass	5.66	17.14	16.71	19.94	30.00	25.60	36.00

DG = Directional Gain; **Port X** = Port X output power

Directional gain = $10 * \log((10^{2.8/20}+10^{2.5/20})^2/2 = 5.66$ dBi

3.4 Power Spectral Density

3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.4.2 Test Procedures

Peak PSD

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

Average PSD, duty cycle ≥ 98%

1. Set the RBW = 30 kHz, VBW = 100 kHz.
2. Detector = RMS, Sweep time = auto couple.
3. Sweep time = auto couple.
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.

Average PSD, duty cycle < 98%

1 Set the RBW = 30 kHz, VBW = 100 kHz. Detector = RMS.

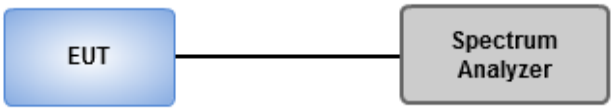
2 Set the sweep time to: ≥ 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).

3 Perform the measurement over a single sweep.

4 Use the peak marker function to determine the maximum amplitude level.

5 Add 10 log (1/x), where x is the duty cycle.

3.4.3 Test Setup



3.4.4 Test Result of Power Spectral Density

Non-beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	1.37
802.11g_Nss1,(6Mbps)_2TX	-3.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-1.79
802.11ac VHT40_Nss1,(MCS0)_2TX	-6.79

RBW=3kHz.

Result

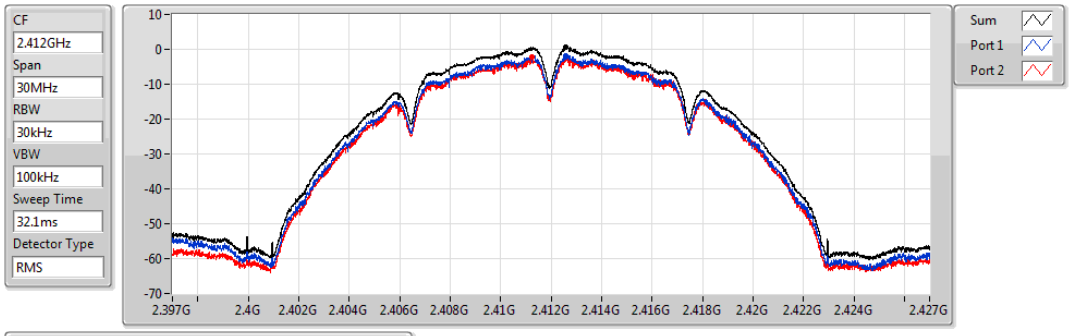
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.66	-1.72	-2.31	0.59	8.00
2437MHz	Pass	5.66	-1.79	-2.80	0.68	8.00
2462MHz	Pass	5.66	-1.22	-1.80	1.37	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.66	-7.37	-7.51	-4.54	8.00
2437MHz	Pass	5.66	-5.58	-6.21	-3.00	8.00
2462MHz	Pass	5.66	-6.81	-7.07	-4.06	8.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.66	-6.50	-6.56	-4.02	8.00
2437MHz	Pass	5.66	-4.36	-4.74	-1.79	8.00
2462MHz	Pass	5.66	-6.44	-6.47	-3.71	8.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.66	-11.38	-11.63	-8.53	8.00
2437MHz	Pass	5.66	-9.37	-10.19	-6.79	8.00
2452MHz	Pass	5.66	-10.99	-11.33	-8.17	8.00

DG = Directional Gain;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

Directional gain = $10 * \log((10^{2.8/20}+10^{2.5/20})^2/2 = 5.66$ dBi

802.11b_Nss1,(1Mbps)_2TX PSD

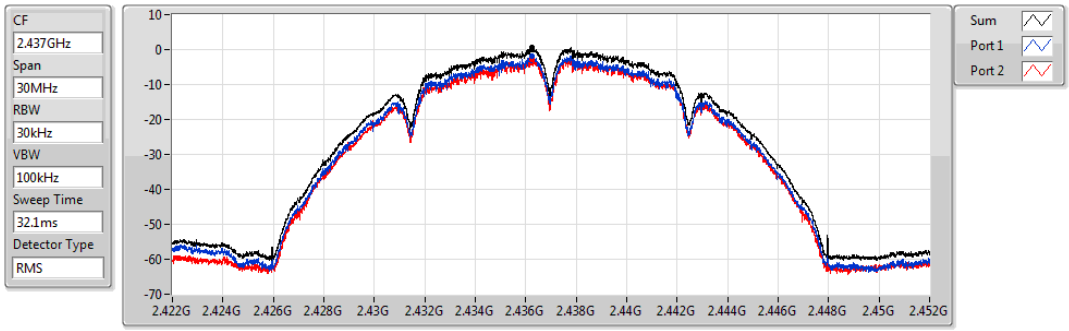
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.59	0.59	-1.72	-2.31

802.11b_Nss1,(1Mbps)_2TX PSD

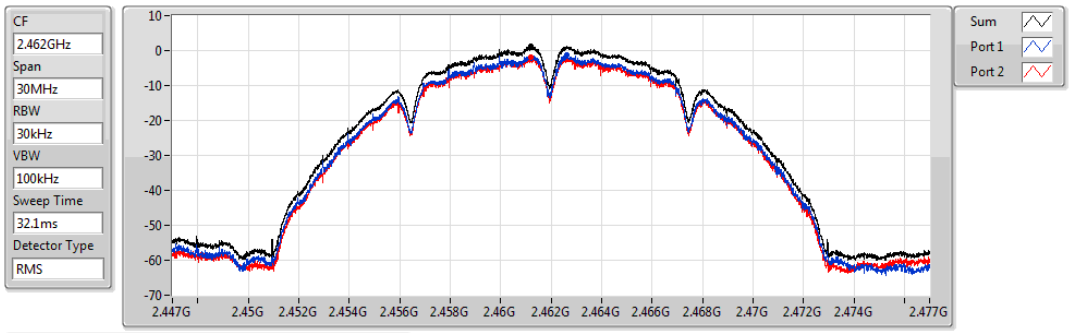
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.68	0.68	-1.79	-2.80

802.11b_Nss1,(1Mbps)_2TX PSD

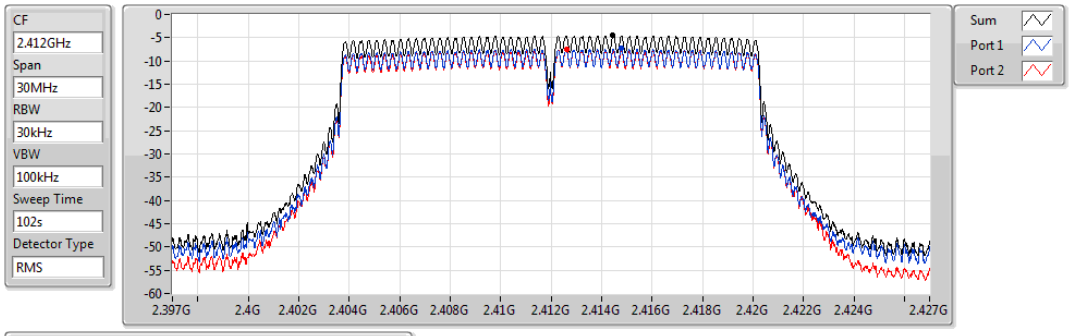
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.37	1.37	-1.22	-1.80

802.11g_Nss1,(6Mbps)_2TX PSD

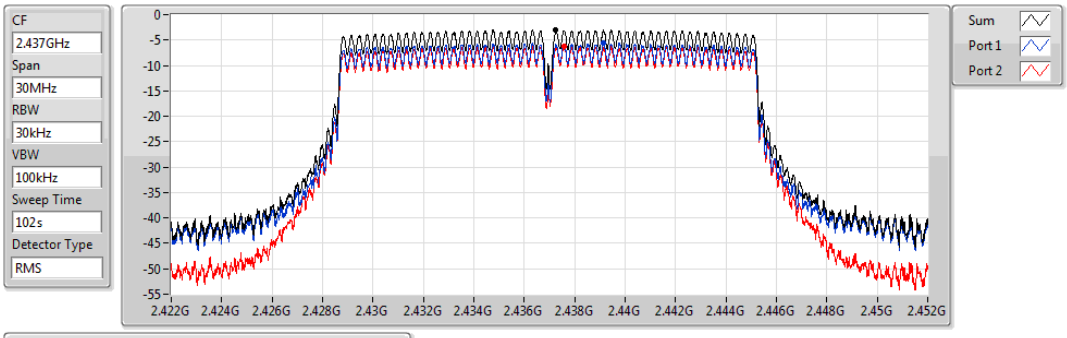
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.54	-4.54	-7.37	-7.51

802.11g_Nss1,(6Mbps)_2TX PSD

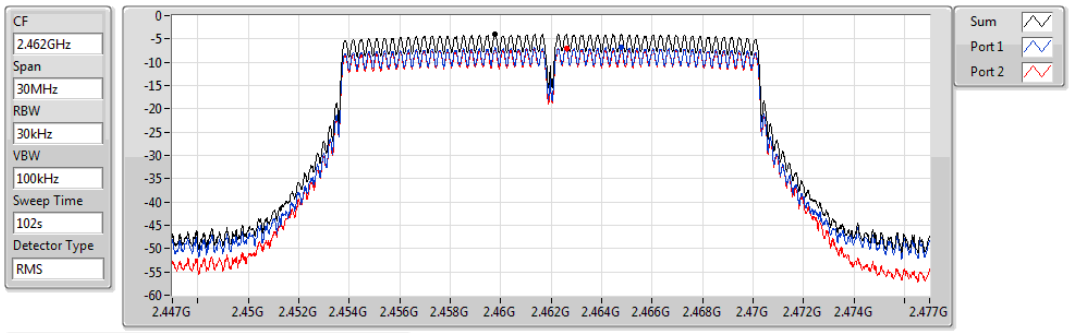
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.00	-3.00	-5.58	-6.21

802.11g_Nss1,(6Mbps)_2TX PSD

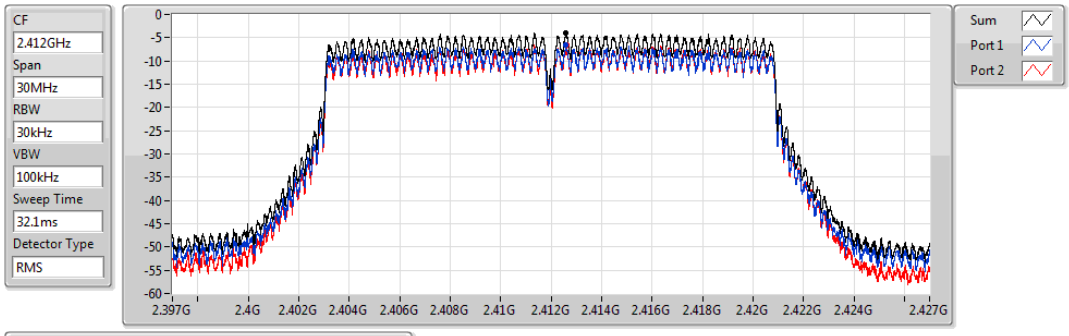
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.06	-4.06	-6.81	-7.07

802.11ac VHT20_Nss1,(MCS0)_2TX **PSD**

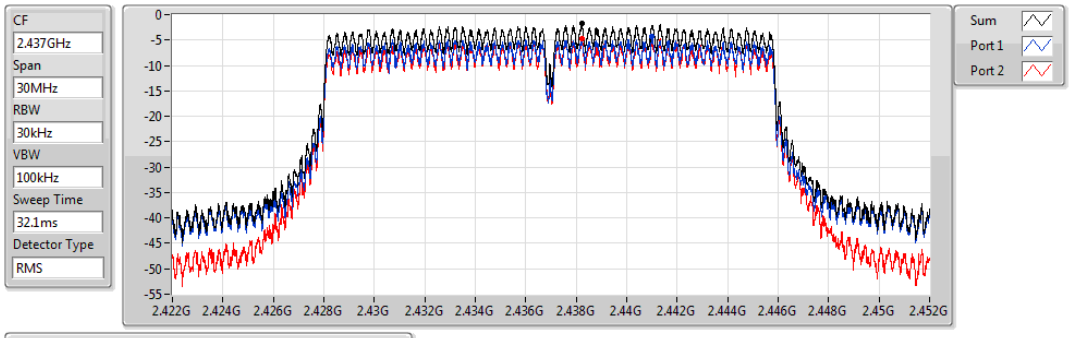
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.02	-4.02	-6.50	-6.56

802.11ac VHT20_Nss1,(MCS0)_2TX **PSD**

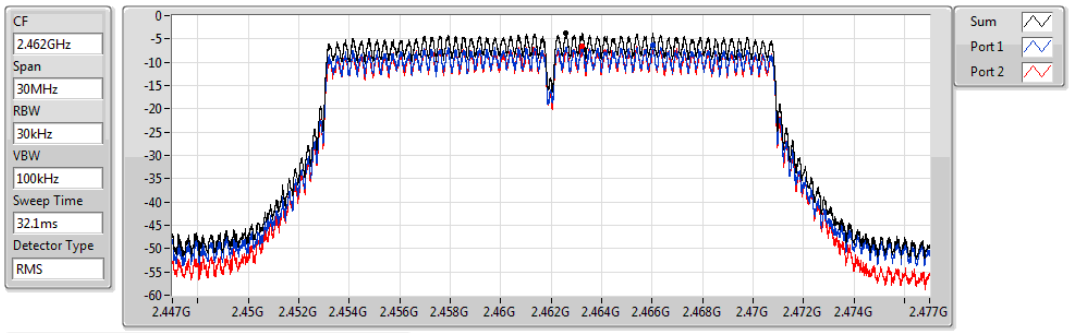
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.79	-1.79	-4.36	-4.74

802.11ac VHT20_Nss1,(MCS0)_2TX **PSD**

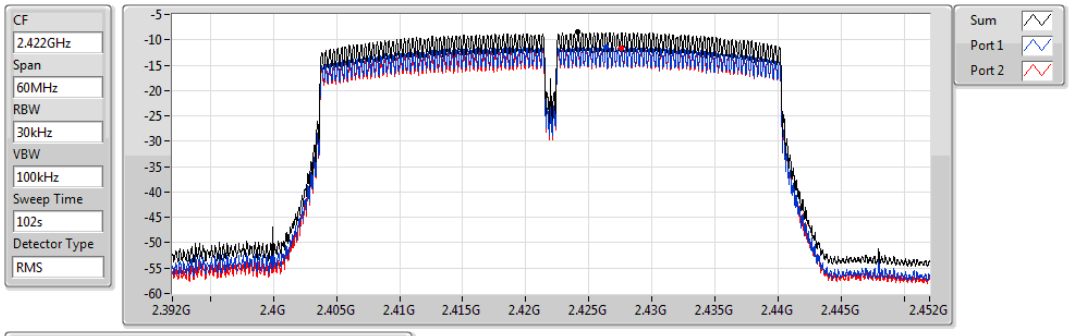
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.71	-3.71	-6.44	-6.47

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

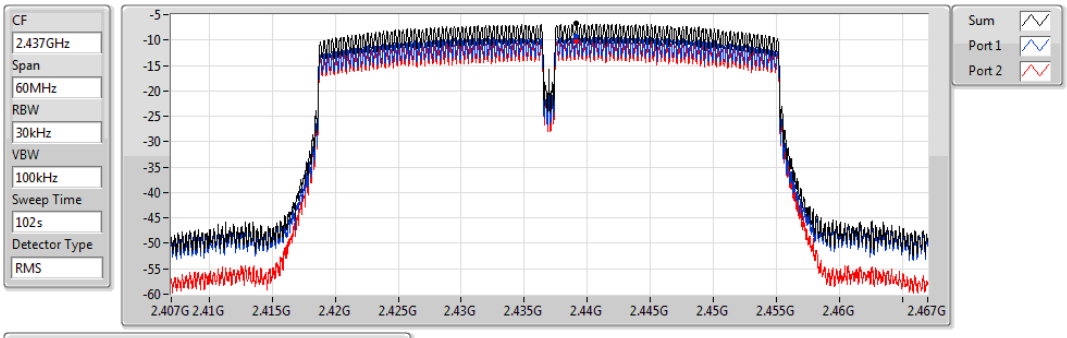
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.53	-8.53	-11.38	-11.63

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

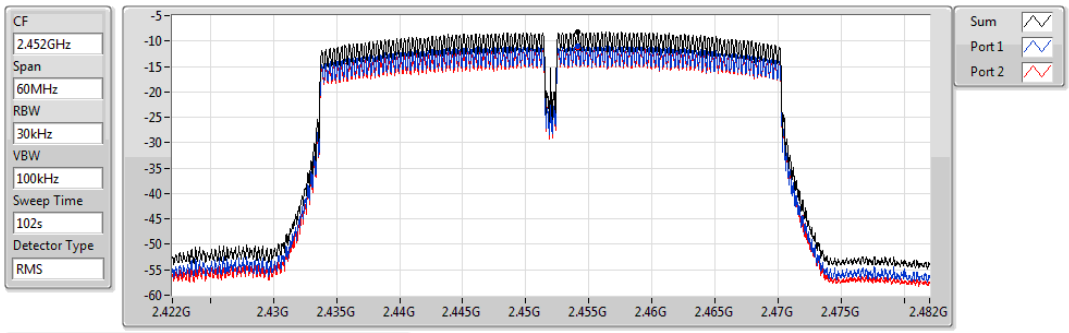
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.79	-6.79	-9.37	-10.19

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.17	-8.17	-10.99	-11.33

Beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-2.30
802.11ac VHT40_Nss1,(MCS0)_2TX	-5.79

RBW=3kHz.

Result

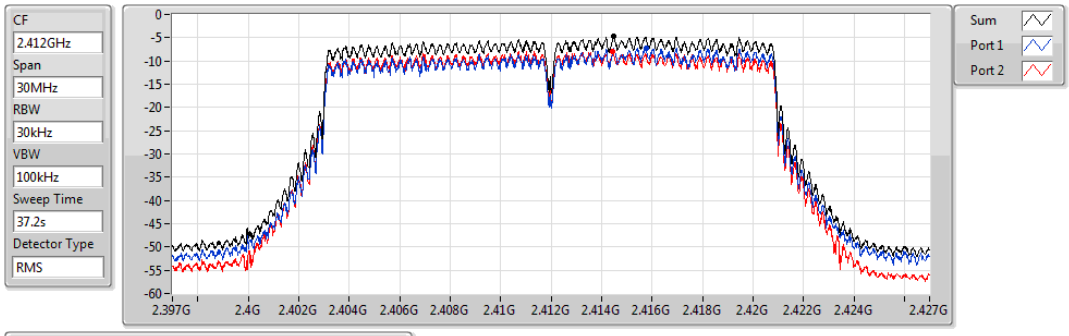
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	5.66	-7.21	-7.97	-4.59	8.00
2437MHz	Pass	5.66	-4.83	-4.99	-2.30	8.00
2462MHz	Pass	5.66	-6.89	-7.05	-4.19	8.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	5.66	-8.85	-11.40	-7.69	8.00
2437MHz	Pass	5.66	-6.81	-9.54	-5.79	8.00
2452MHz	Pass	5.66	-10.13	-10.90	-7.61	8.00

DG = Directional Gain;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

Directional gain = $10 * \log((10^{2.8/20}+10^{2.5/20})^2/2 = 5.66$ dBi

802.11ac VHT20_Nss1,(MCS0)_2TX PSD

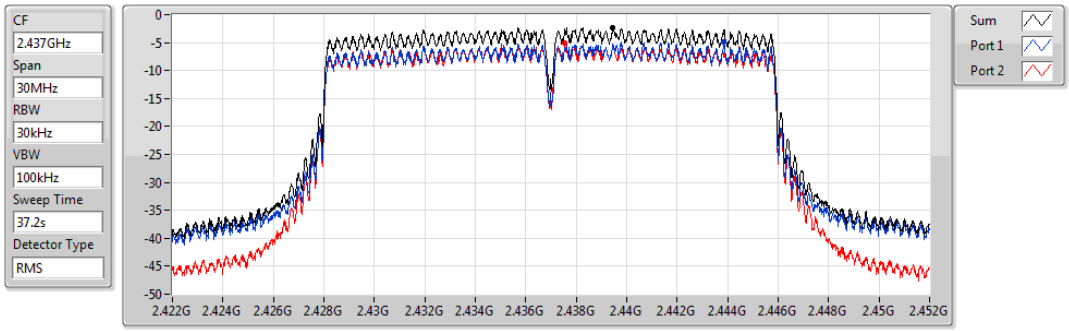
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.59	-4.59	-7.21	-7.97

802.11ac VHT20_Nss1,(MCS0)_2TX PSD

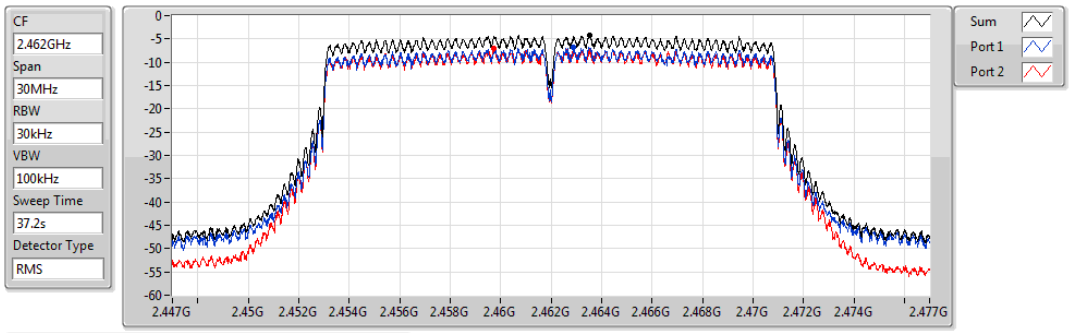
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.30	-2.30	-4.83	-4.99

802.11ac VHT20_Nss1,(MCS0)_2TX PSD

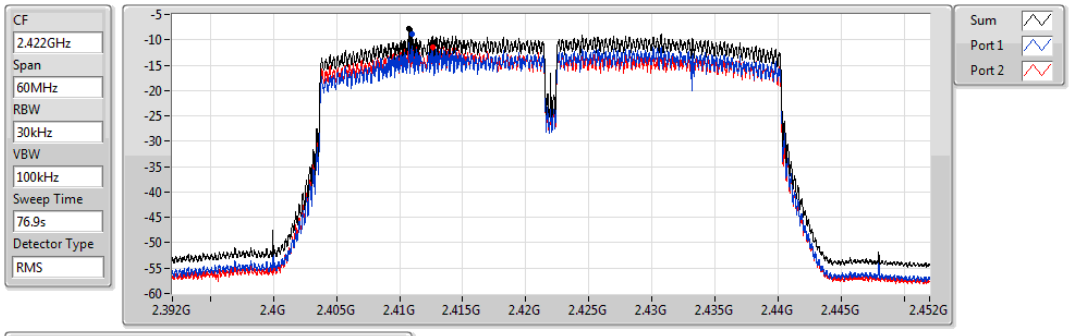
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.19	-4.19	-6.89	-7.05

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

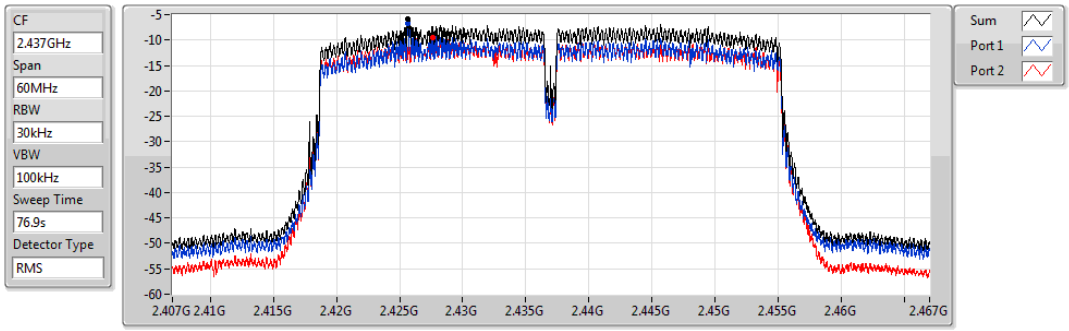
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.69	-7.69	-8.85	-11.40

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

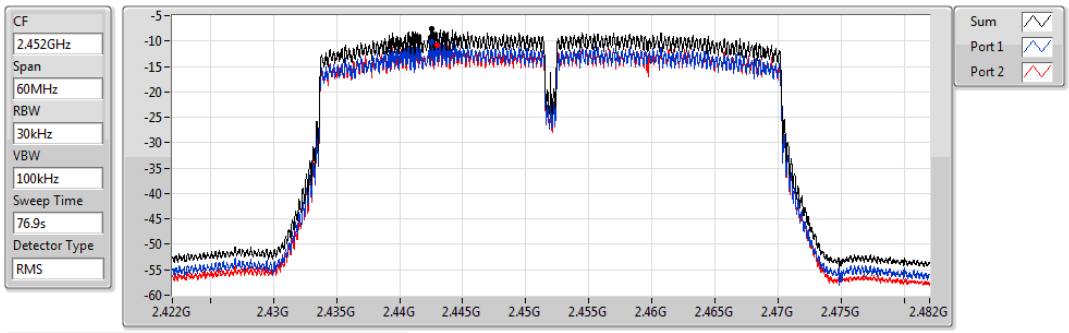
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.79	-5.79	-6.81	-9.54

802.11ac VHT40_Nss1,(MCS0)_2TX PSD

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.61	-7.61	-10.13	-10.90

3.5 Unwanted Emissions into Restricted Frequency Bands

3.5.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit
Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.5.2 Test Procedures

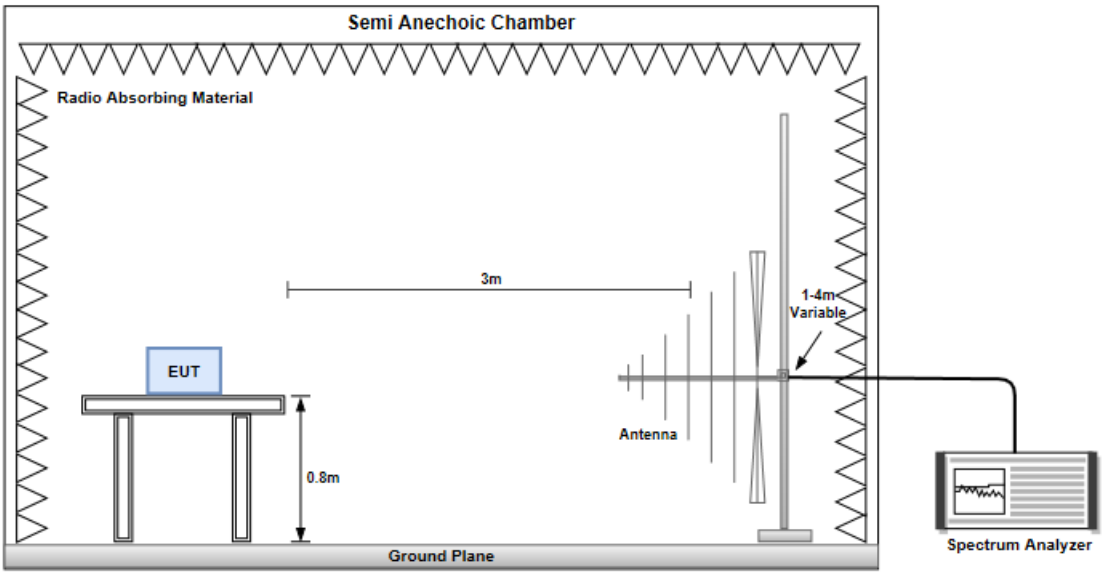
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

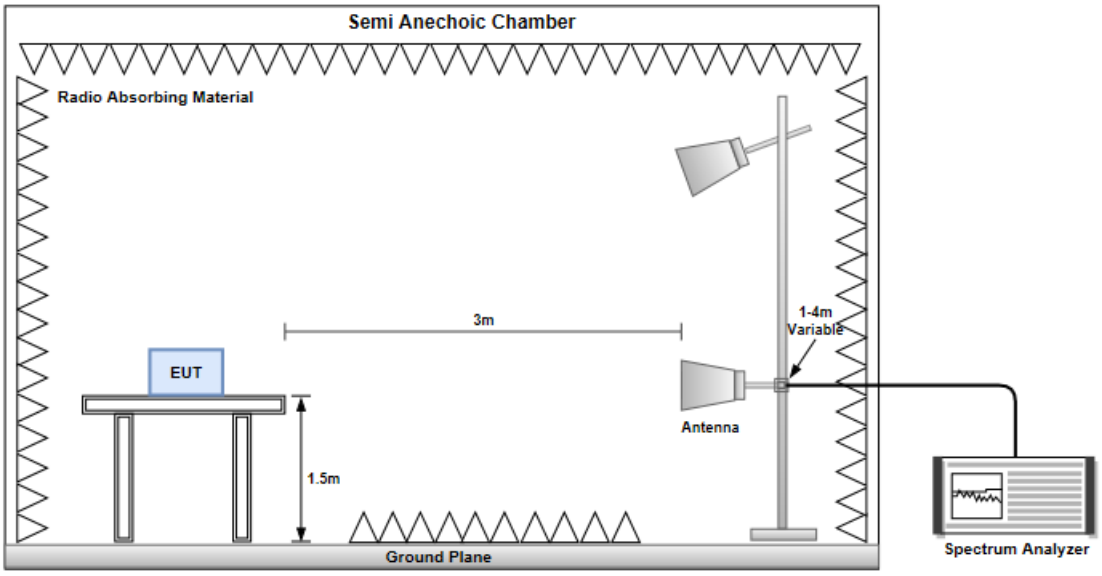
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.5.3 Test Setup

Radiated Emissions below 1 GHz



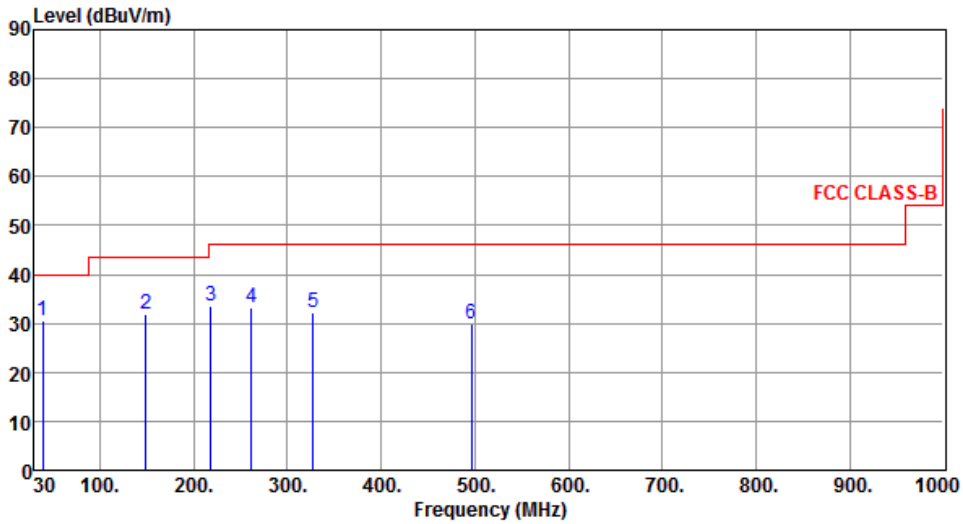
Radiated Emissions above 1 GHz



Non-beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

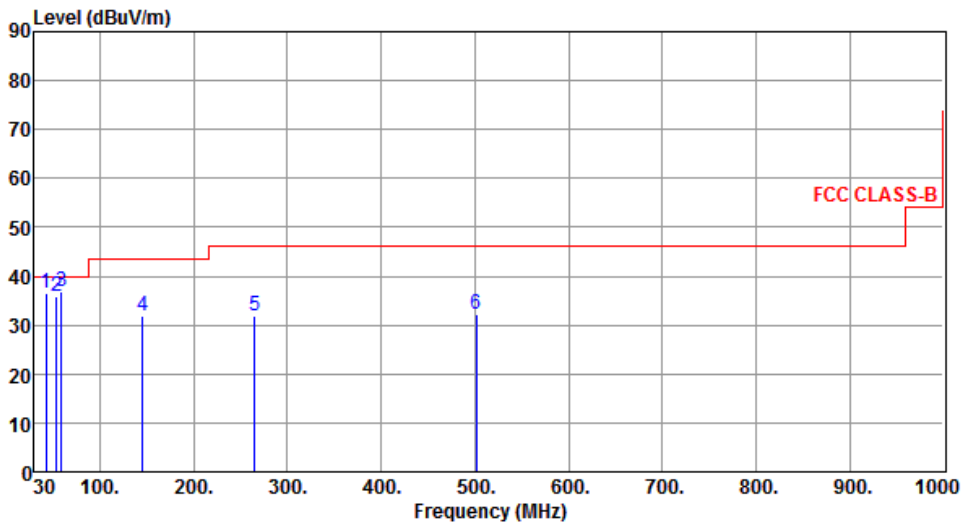
Modulation	11b	**Test Freq. (MHz)**	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	38.73	30.54	40.00	-9.46	38.80	-8.26	Peak	---	---
2	149.31	31.75	43.50	-11.75	40.10	-8.35	Peak	---	---
3	218.18	33.50	46.00	-12.50	44.37	-10.87	Peak	---	---
4	261.83	33.24	46.00	-12.76	42.19	-8.95	Peak	---	---
5	327.79	32.15	46.00	-13.85	39.16	-7.01	Peak	---	---
6	496.57	30.04	46.00	-15.96	33.03	-2.99	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	11b	Test Freq. (MHz)	2462
Polarization	Vertical		

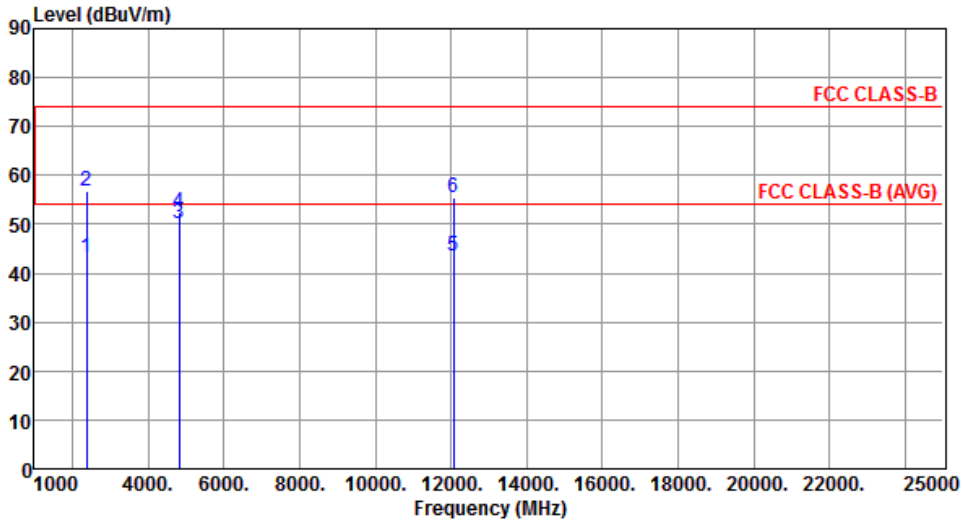


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.61	36.58	40.00	-3.42	44.50	-7.92	Peak	---	---
2	53.76	35.98	40.00	-4.02	43.96	-7.98	Peak	100	18
3	58.53	36.75	40.00	-3.25	45.23	-8.48	QP	100	20
4	145.43	32.03	43.50	-11.47	40.44	-8.41	Peak	---	---
5	264.74	31.73	46.00	-14.27	40.55	-8.82	Peak	---	---
6	501.42	32.25	46.00	-13.75	35.03	-2.78	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

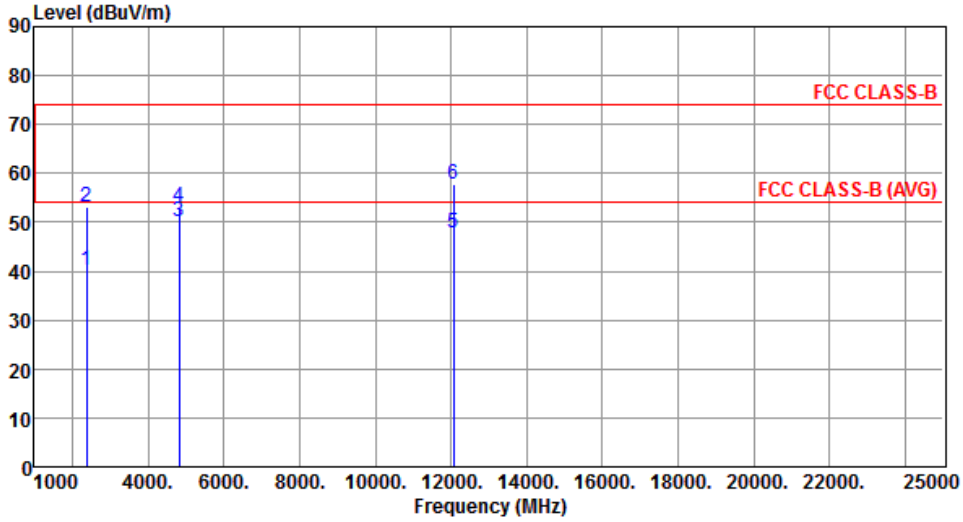
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.18	54.00	-10.82	46.25	-3.07	Average	123	214
2	2390.00	56.95	74.00	-17.05	60.02	-3.07	Peak	123	214
3	4824.00	50.10	54.00	-3.90	46.57	3.53	Average	100	57
4	4824.00	52.55	74.00	-21.45	49.02	3.53	Peak	100	57
5	12060.00	43.37	54.00	-10.63	30.10	13.27	Average	100	241
6	12060.00	55.57	74.00	-18.43	42.30	13.27	Peak	100	241

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

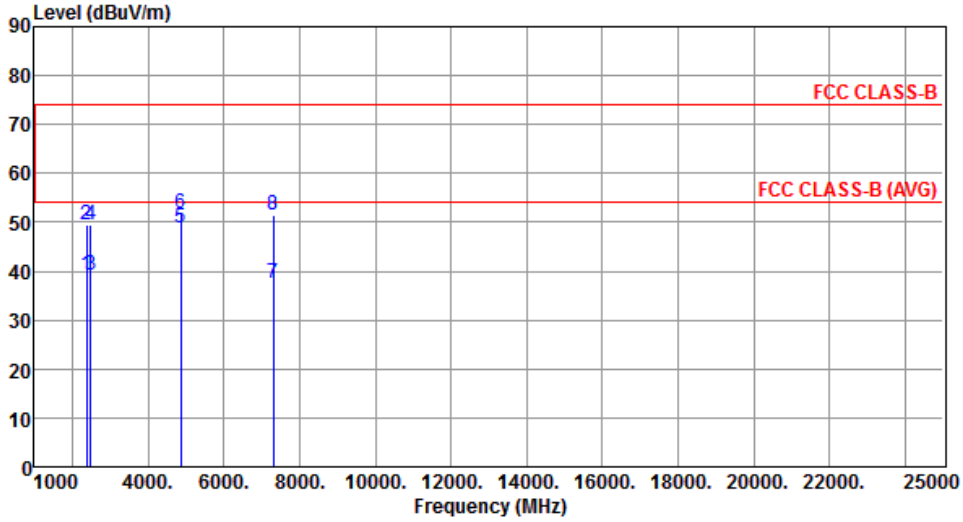
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	40.26	54.00	-13.74	43.33	-3.07	Average	100	63
2	2390.00	53.15	74.00	-20.85	56.22	-3.07	Peak	100	63
3	4824.00	50.29	54.00	-3.71	46.76	3.53	Average	298	331
4	4824.00	53.01	74.00	-20.99	49.48	3.53	Peak	298	331
5	12060.00	47.69	54.00	-6.31	34.42	13.27	Average	325	280
6	12060.00	57.90	74.00	-16.10	44.63	13.27	Peak	325	280

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

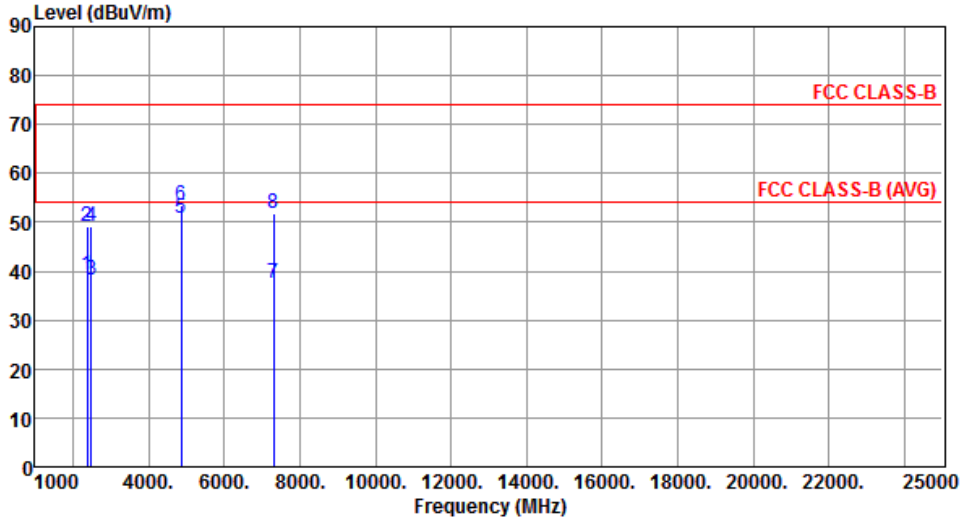
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.34	54.00	-14.66	42.41	-3.07	Average	115	220
2	2390.00	49.34	74.00	-24.66	52.41	-3.07	Peak	115	220
3	2483.50	39.06	54.00	-14.94	42.28	-3.22	Average	115	220
4	2483.50	49.44	74.00	-24.56	52.66	-3.22	Peak	115	220
5	4874.00	48.81	54.00	-5.19	45.21	3.60	Average	105	86
6	4874.00	51.74	74.00	-22.26	48.14	3.60	Peak	105	86
7	7311.00	37.49	54.00	-16.51	28.67	8.82	Average	100	104
8	7311.00	51.37	74.00	-22.63	42.55	8.82	Peak	100	104

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

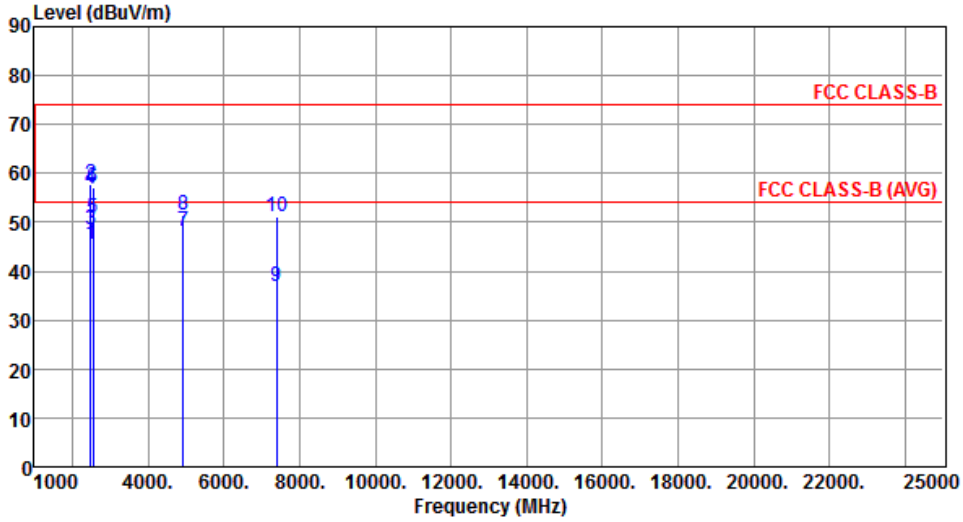
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.04	54.00	-14.96	42.11	-3.07	Average	100	62
2	2390.00	49.28	74.00	-24.72	52.35	-3.07	Peak	100	62
3	2483.50	38.34	54.00	-15.66	41.56	-3.22	Average	100	62
4	2483.50	49.19	74.00	-24.81	52.41	-3.22	Peak	100	62
5	4874.00	50.95	54.00	-3.05	47.35	3.60	Average	273	322
6	4874.00	53.34	74.00	-20.66	49.74	3.60	Peak	273	322
7	7311.00	37.39	54.00	-16.61	28.57	8.82	Average	100	25
8	7311.00	51.70	74.00	-22.30	42.88	8.82	Peak	100	25

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

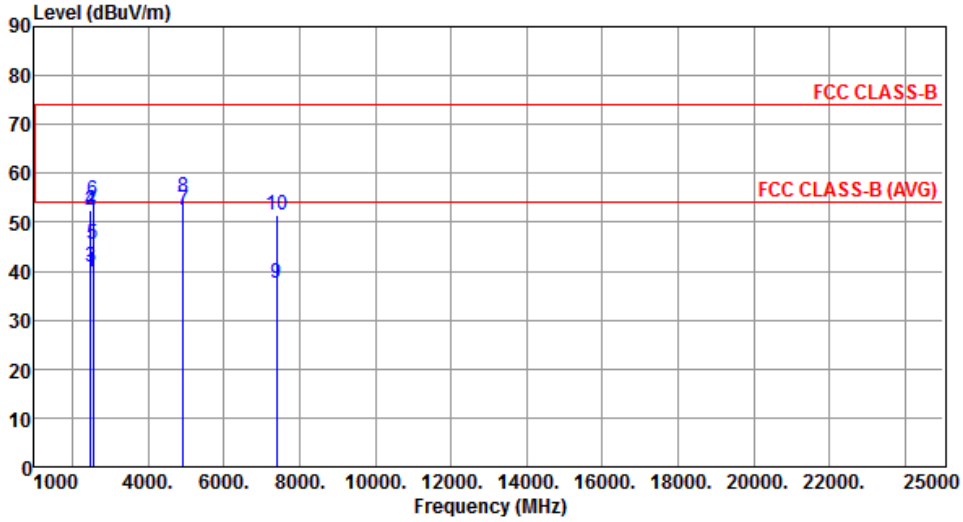
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	45.63	54.00	-8.37	48.85	-3.22	Average	113	216
2	2483.50	57.67	74.00	-16.33	60.89	-3.22	Peak	113	216
3	2496.00	48.37	54.00	-5.63	51.62	-3.25	Average	113	216
4	2496.00	56.91	74.00	-17.09	60.16	-3.25	Peak	113	216
5	2560.00	50.73	54.00	-3.27	53.91	-3.18	Average	100	214
6	2560.00	57.25	74.00	-16.75	60.43	-3.18	Peak	100	214
7	4924.00	48.27	54.00	-5.73	44.56	3.71	Average	106	85
8	4924.00	51.50	74.00	-22.50	47.79	3.71	Peak	106	85
9	7386.00	37.00	54.00	-17.00	28.45	8.55	Average	100	105
10	7386.00	51.23	74.00	-22.77	42.68	8.55	Peak	100	105

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11b	Test Freq. (MHz)	2462
Polarization	Vertical		

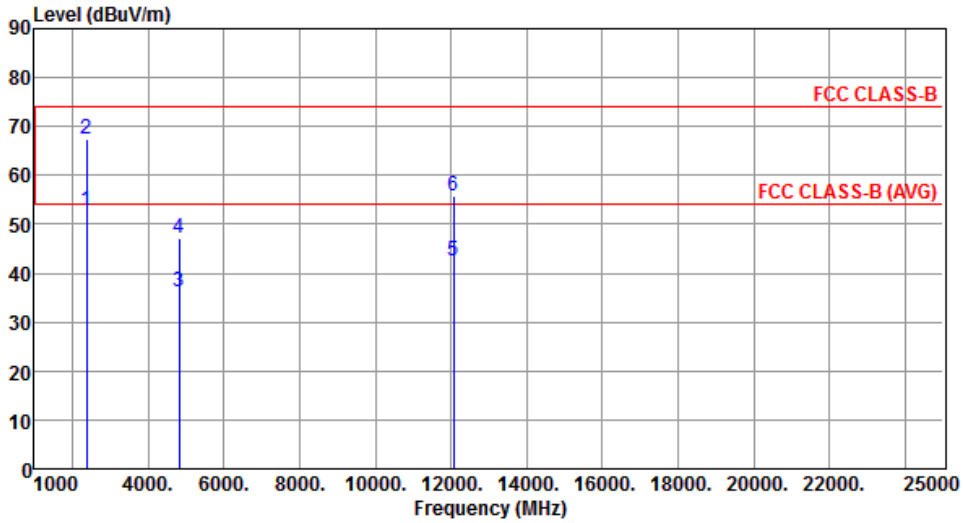


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	39.98	54.00	-14.02	43.20	-3.22	Average	100	59
2	2483.50	52.45	74.00	-21.55	55.67	-3.22	Peak	100	59
3	2496.00	40.93	54.00	-13.07	44.18	-3.25	Average	100	59
4	2496.00	52.40	74.00	-21.60	55.65	-3.25	Peak	100	59
5	2560.00	45.49	54.00	-8.51	48.67	-3.18	Average	100	140
6	2560.00	54.42	74.00	-19.58	57.60	-3.18	Peak	100	140
7	4924.00	52.38	54.00	-1.62	48.67	3.71	Average	297	332
8	4924.00	55.01	74.00	-18.99	51.30	3.71	Peak	297	332
9	7386.00	37.52	54.00	-16.48	28.97	8.55	Average	100	23
10	7386.00	51.37	74.00	-22.63	42.82	8.55	Peak	100	23

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

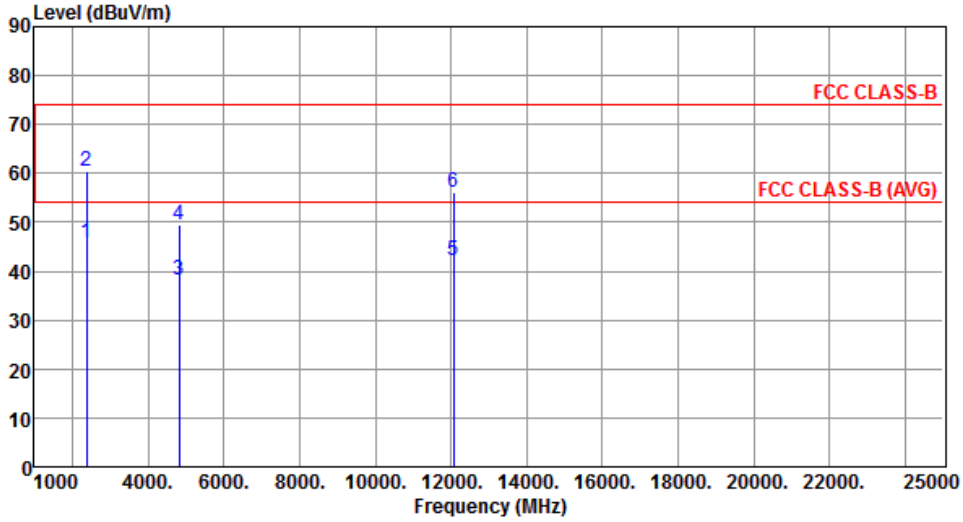
Modulation	11g	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.94	54.00	-1.06	56.01	-3.07	Average	105	217
2	2390.00	67.53	74.00	-6.47	70.60	-3.07	Peak	105	217
3	4824.00	36.34	54.00	-17.66	32.81	3.53	Average	100	63
4	4824.00	47.11	74.00	-26.89	43.58	3.53	Peak	100	63
5	12060.00	42.45	54.00	-11.55	29.18	13.27	Average	100	239
6	12060.00	55.94	74.00	-18.06	42.67	13.27	Peak	100	239

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

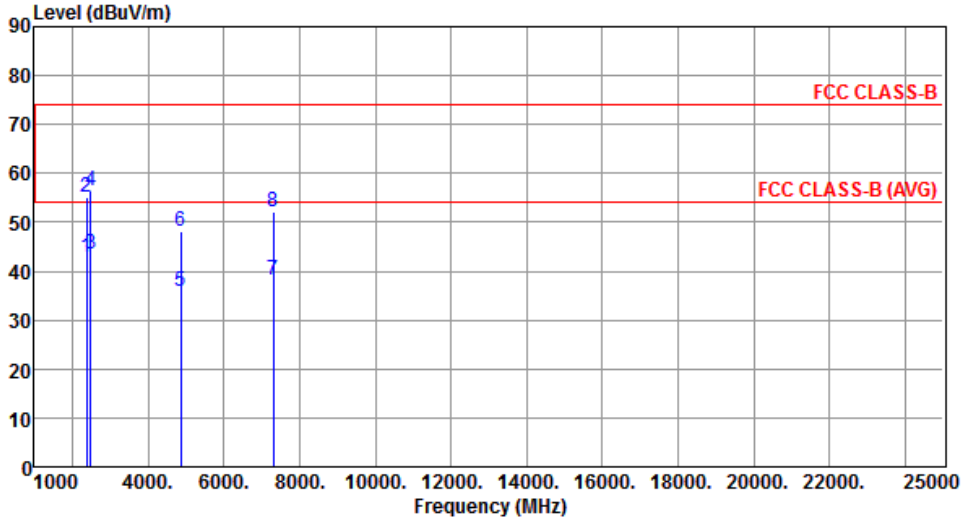
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.94	54.00	-8.06	49.01	-3.07	Average	100	43
2	2390.00	60.53	74.00	-13.47	63.60	-3.07	Peak	100	43
3	4824.00	38.34	54.00	-15.66	34.81	3.53	Average	291	337
4	4824.00	49.40	74.00	-24.60	45.87	3.53	Peak	291	337
5	12060.00	42.18	54.00	-11.82	28.91	13.27	Average	291	337
6	12060.00	56.11	74.00	-17.89	42.84	13.27	Peak	291	337

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

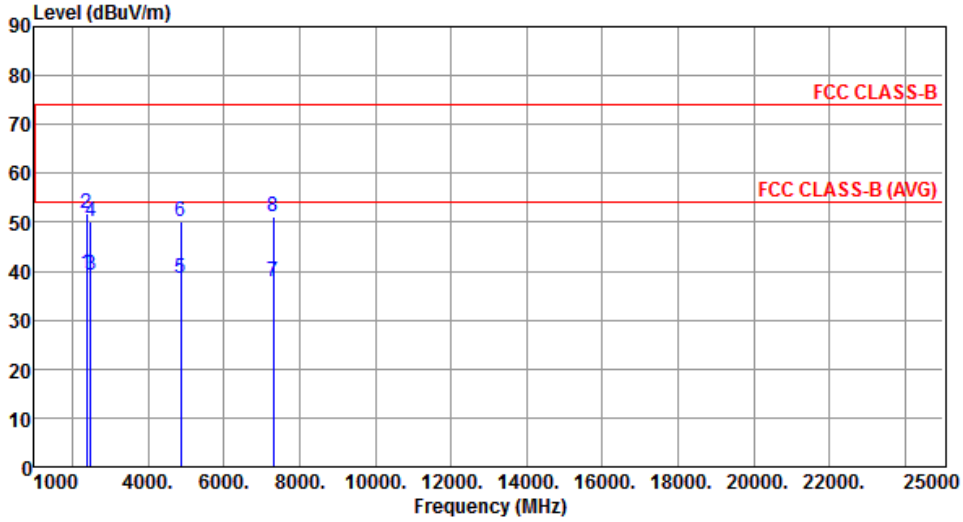
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	42.82	54.00	-11.18	45.89	-3.07	Average	112	208
2	2390.00	54.98	74.00	-19.02	58.05	-3.07	Peak	112	208
3	2483.50	43.67	54.00	-10.33	46.89	-3.22	Average	112	208
4	2483.50	56.62	74.00	-17.38	59.84	-3.22	Peak	112	208
5	4874.00	35.88	54.00	-18.12	32.28	3.60	Average	100	62
6	4874.00	48.19	74.00	-25.81	44.59	3.60	Peak	100	62
7	7311.00	38.08	54.00	-15.92	29.26	8.82	Average	100	109
8	7311.00	52.05	74.00	-21.95	43.23	8.82	Peak	100	109

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

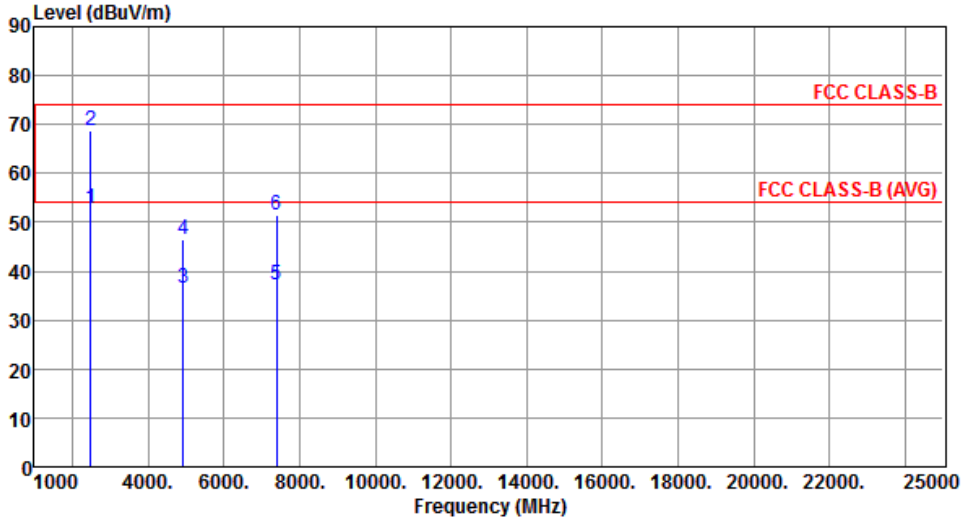
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.37	54.00	-14.63	42.44	-3.07	Average	100	51
2	2390.00	51.80	74.00	-22.20	54.87	-3.07	Peak	100	51
3	2483.50	39.15	54.00	-14.85	42.37	-3.22	Average	100	51
4	2483.50	50.05	74.00	-23.95	53.27	-3.22	Peak	100	51
5	4874.00	38.42	54.00	-15.58	34.82	3.60	Average	289	329
6	4874.00	50.29	74.00	-23.71	46.69	3.60	Peak	289	329
7	7311.00	37.94	54.00	-16.06	29.12	8.82	Average	100	24
8	7311.00	51.18	74.00	-22.82	42.36	8.82	Peak	100	24

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

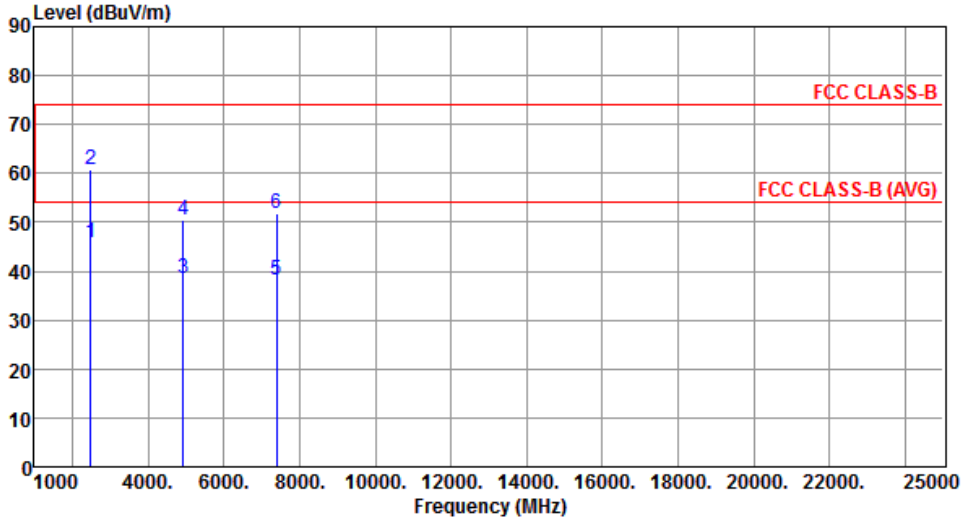
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.88	54.00	-1.12	56.10	-3.22	Average	105	216
2	2483.50	68.82	74.00	-5.18	72.04	-3.22	Peak	105	216
3	4924.00	36.43	54.00	-17.57	32.72	3.71	Average	100	67
4	4924.00	46.58	74.00	-27.42	42.87	3.71	Peak	100	67
5	7386.00	37.33	54.00	-16.67	28.78	8.55	Average	100	102
6	7386.00	51.42	74.00	-22.58	42.87	8.55	Peak	100	102

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	11g	Test Freq. (MHz)	2462
Polarization	Vertical		

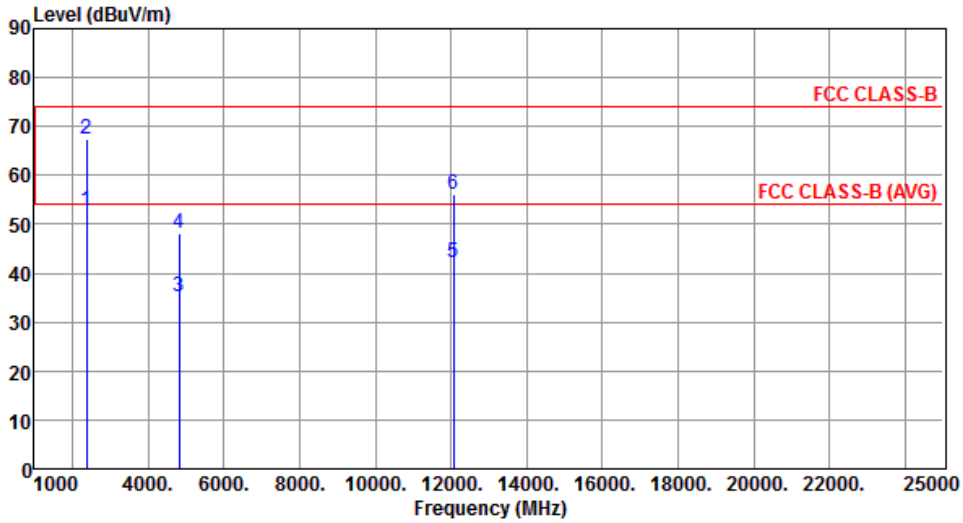


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	45.81	54.00	-8.19	49.03	-3.22	Average	100	55
2	2483.50	60.67	74.00	-13.33	63.89	-3.22	Peak	100	55
3	4924.00	38.65	54.00	-15.35	34.94	3.71	Average	278	331
4	4924.00	50.43	74.00	-23.57	46.72	3.71	Peak	278	331
5	7386.00	38.22	54.00	-15.78	29.67	8.55	Average	100	289
6	7386.00	51.80	74.00	-22.20	43.25	8.55	Peak	100	289

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

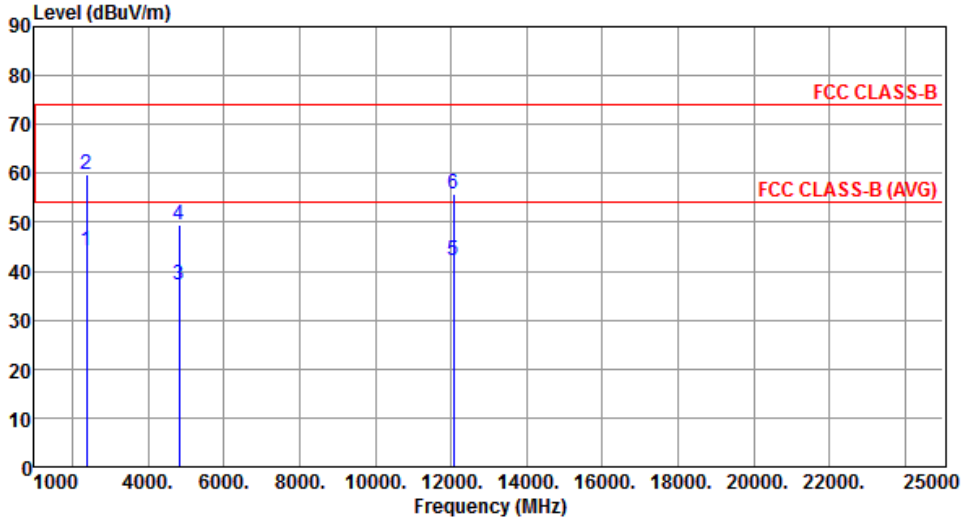
Modulation	VHT20	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.82	54.00	-1.18	55.89	-3.07	Average	124	329
2	2390.00	67.57	74.00	-6.43	70.64	-3.07	Peak	124	329
3	4824.00	35.32	54.00	-18.68	31.79	3.53	Average	100	66
4	4824.00	48.05	74.00	-25.95	44.52	3.53	Peak	100	66
5	12060.00	42.23	54.00	-11.77	28.96	13.27	Average	100	252
6	12060.00	56.09	74.00	-17.91	42.82	13.27	Peak	100	252

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

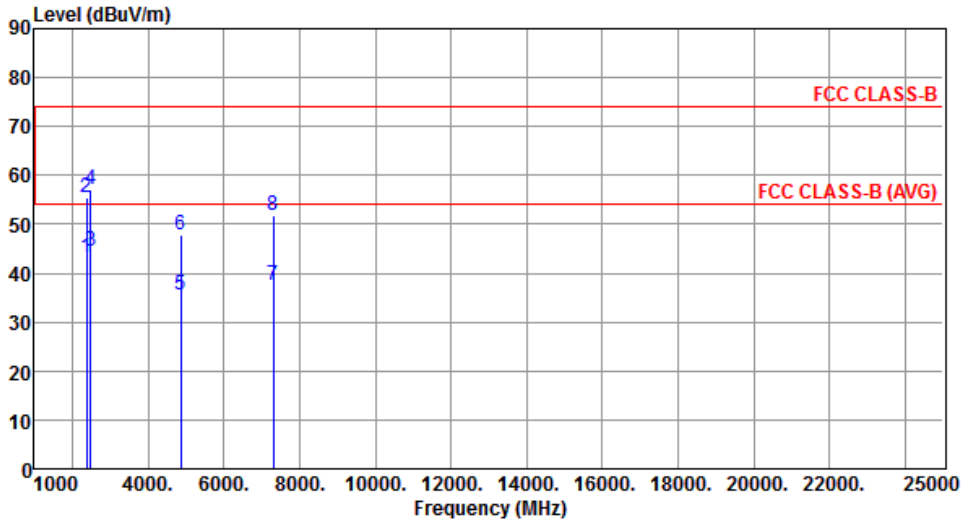
Modulation	VHT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	44.30	54.00	-9.70	47.37	-3.07	Average	102	52
2	2390.00	59.77	74.00	-14.23	62.84	-3.07	Peak	102	52
3	4824.00	37.03	54.00	-16.97	33.50	3.53	Average	100	62
4	4824.00	49.50	74.00	-24.50	45.97	3.53	Peak	100	62
5	12060.00	42.23	54.00	-11.77	28.96	13.27	Average	100	282
6	12060.00	55.91	74.00	-18.09	42.64	13.27	Peak	100	282

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

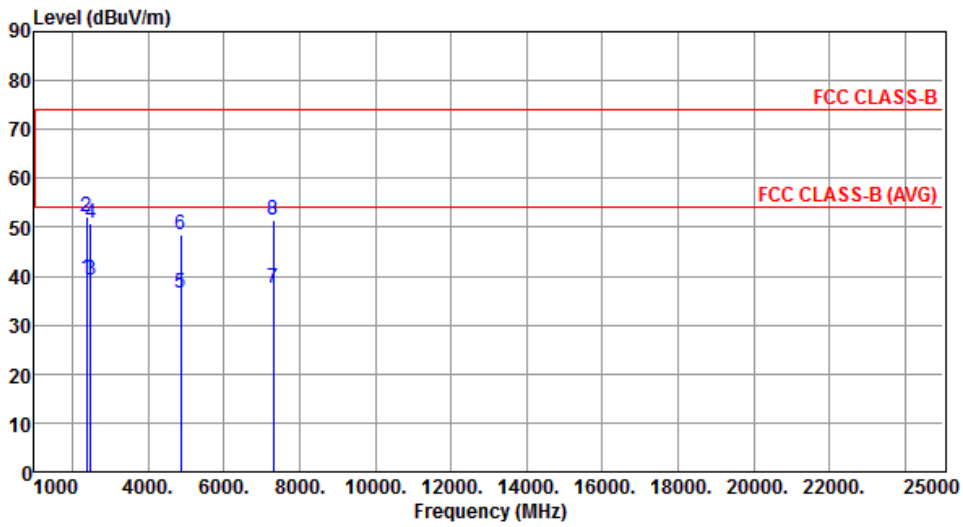
Modulation	VHT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.30	54.00	-10.70	46.37	-3.07	Average	118	216
2	2390.00	55.44	74.00	-18.56	58.51	-3.07	Peak	118	216
3	2483.50	44.36	54.00	-9.64	47.58	-3.22	Average	118	216
4	2483.50	57.08	74.00	-16.92	60.30	-3.22	Peak	118	216
5	4874.00	35.48	54.00	-18.52	31.88	3.60	Average	101	60
6	4874.00	47.86	74.00	-26.14	44.26	3.60	Peak	101	60
7	7311.00	37.51	54.00	-16.49	28.69	8.82	Average	100	112
8	7311.00	51.81	74.00	-22.19	42.99	8.82	Peak	100	112

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

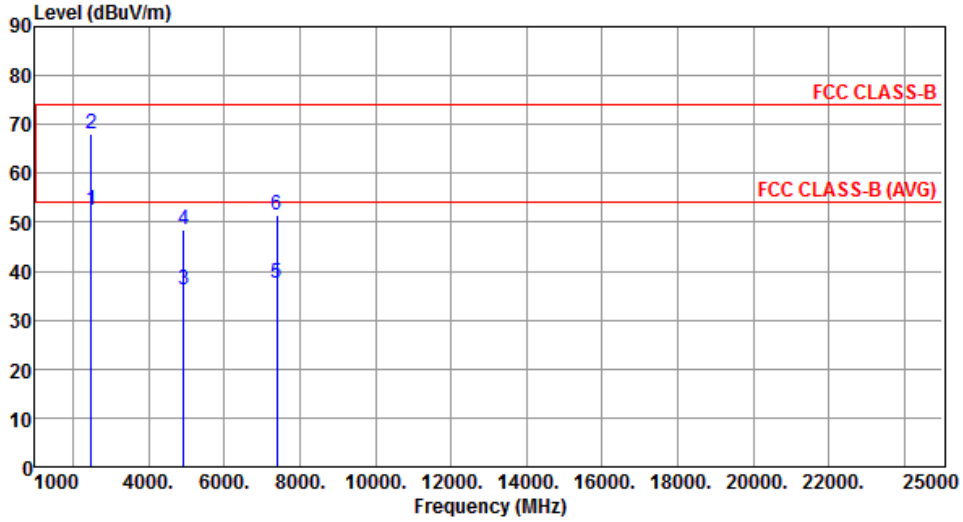
Modulation	VHT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	39.61	54.00	-14.39	42.68	-3.07	Average	100	46
2	2390.00	52.05	74.00	-21.95	55.12	-3.07	Peak	100	46
3	2483.50	39.22	54.00	-14.78	42.44	-3.22	Average	100	46
4	2483.50	50.66	74.00	-23.34	53.88	-3.22	Peak	100	46
5	4874.00	36.60	54.00	-17.40	33.00	3.60	Average	286	337
6	4874.00	48.60	74.00	-25.40	45.00	3.60	Peak	286	337
7	7311.00	37.51	54.00	-16.49	28.69	8.82	Average	100	26
8	7311.00	51.48	74.00	-22.52	42.66	8.82	Peak	100	26

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

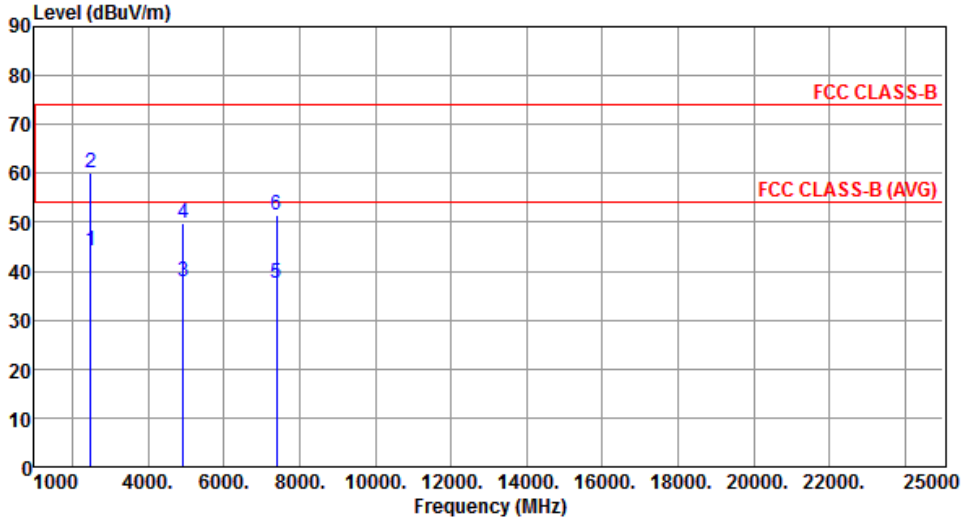
Modulation	VHT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.55	54.00	-1.45	55.77	-3.22	Average	176	269
2	2483.50	68.11	74.00	-5.89	71.33	-3.22	Peak	176	269
3	4924.00	36.06	54.00	-17.94	32.35	3.71	Average	100	68
4	4924.00	48.57	74.00	-25.43	44.86	3.71	Peak	100	68
5	7386.00	37.50	54.00	-16.50	28.95	8.55	Average	100	107
6	7386.00	51.42	74.00	-22.58	42.87	8.55	Peak	100	107

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT20	Test Freq. (MHz)	2462
Polarization	Vertical		

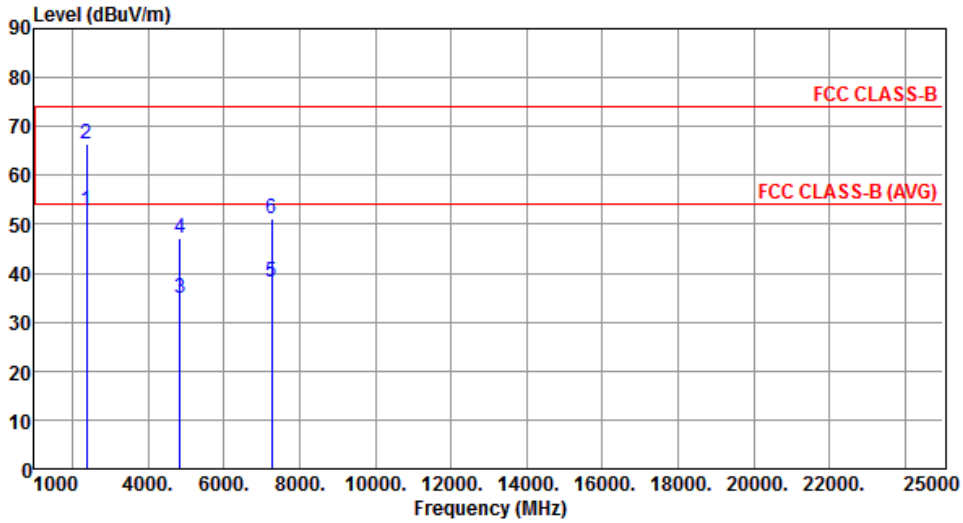


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	44.15	54.00	-9.85	47.37	-3.22	Average	104	62
2	2483.50	60.05	74.00	-13.95	63.27	-3.22	Peak	104	62
3	4924.00	38.00	54.00	-16.00	34.29	3.71	Average	271	329
4	4924.00	49.77	74.00	-24.23	46.06	3.71	Peak	271	329
5	7386.00	37.52	54.00	-16.48	28.97	8.55	Average	100	31
6	7386.00	51.36	74.00	-22.64	42.81	8.55	Peak	100	31

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

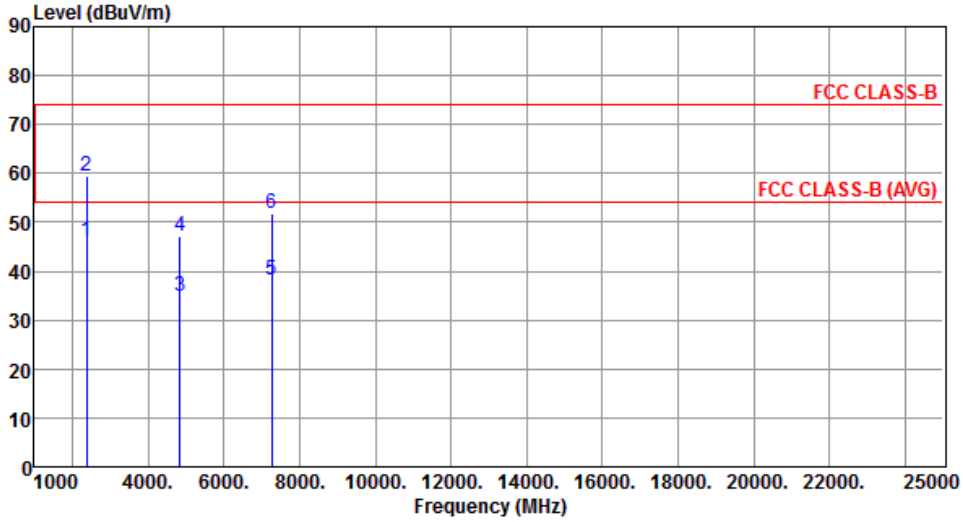
Modulation	VHT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.88	54.00	-1.12	55.95	-3.07	Average	100	217
2	2390.00	66.45	74.00	-7.55	69.52	-3.07	Peak	100	217
3	4844.00	34.83	54.00	-19.17	31.27	3.56	Average	100	62
4	4844.00	47.08	74.00	-26.92	43.52	3.56	Peak	100	62
5	7266.00	38.19	54.00	-15.81	29.32	8.87	Average	100	101
6	7266.00	51.26	74.00	-22.74	42.39	8.87	Peak	100	101

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

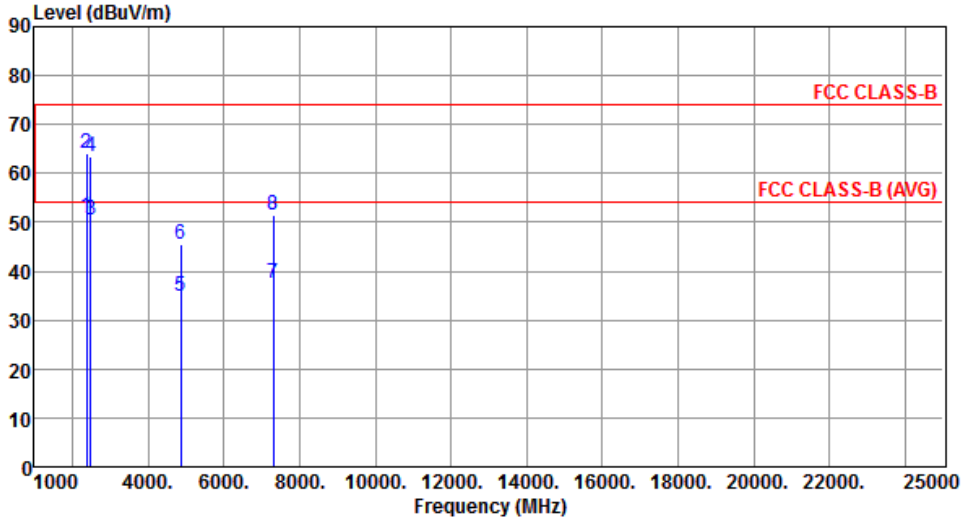
Modulation	VHT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.10	54.00	-7.90	49.17	-3.07	Average	100	49
2	2390.00	59.61	74.00	-14.39	62.68	-3.07	Peak	100	49
3	4844.00	34.77	54.00	-19.23	31.21	3.56	Average	271	332
4	4844.00	47.14	74.00	-26.86	43.58	3.56	Peak	271	332
5	7266.00	38.24	54.00	-15.76	29.37	8.87	Average	100	21
6	7266.00	51.81	74.00	-22.19	42.94	8.87	Peak	100	21

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

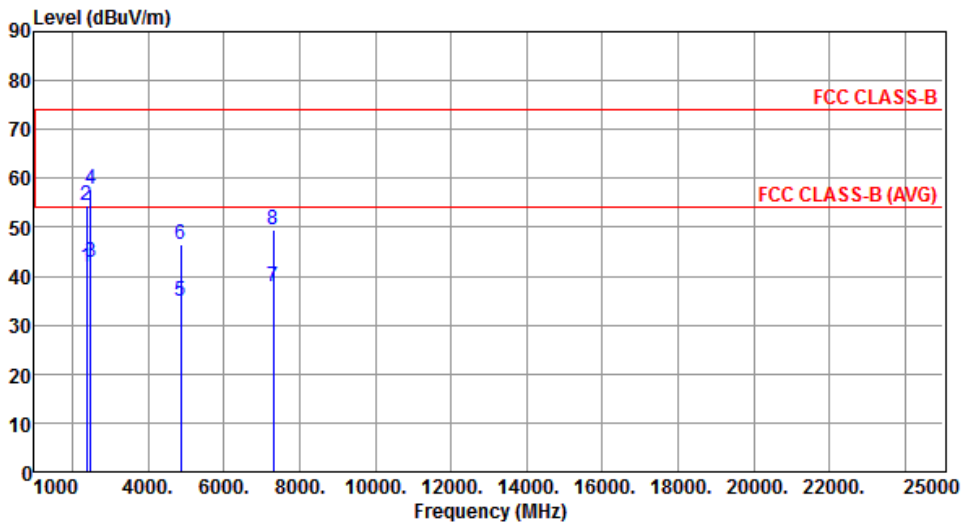
Modulation	VHT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	51.04	54.00	-2.96	54.11	-3.07	Average	100	216
2	2390.00	64.21	74.00	-9.79	67.28	-3.07	Peak	100	216
3	2483.50	50.54	54.00	-3.46	53.76	-3.22	Average	100	216
4	2483.50	63.46	74.00	-10.54	66.68	-3.22	Peak	100	216
5	4874.00	34.94	54.00	-19.06	31.34	3.60	Average	100	67
6	4874.00	45.44	74.00	-28.56	41.84	3.60	Peak	100	67
7	7311.00	37.48	54.00	-16.52	28.66	8.82	Average	100	106
8	7311.00	51.48	74.00	-22.52	42.66	8.82	Peak	100	106

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

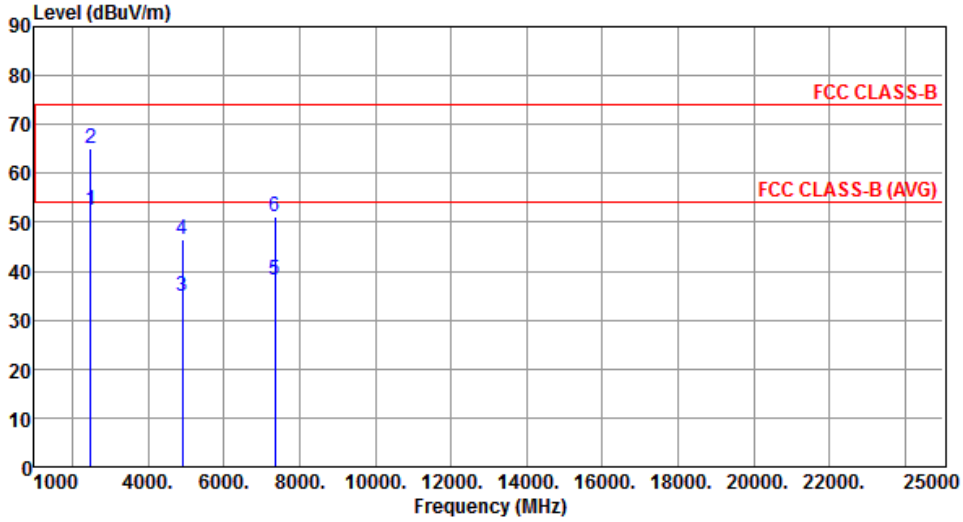
Modulation	VHT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	41.73	54.00	-12.27	44.80	-3.07	Average	100	63
2	2390.00	54.61	74.00	-19.39	57.68	-3.07	Peak	100	63
3	2483.50	42.87	54.00	-11.13	46.09	-3.22	Average	100	63
4	2483.50	57.66	74.00	-16.34	60.88	-3.22	Peak	100	63
5	4874.00	34.99	54.00	-19.01	31.39	3.60	Average	281	331
6	4874.00	46.61	74.00	-27.39	43.01	3.60	Peak	281	331
7	7311.00	37.76	54.00	-16.24	28.94	8.82	Average	100	29
8	7311.00	49.55	74.00	-24.45	40.73	8.82	Peak	100	29

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

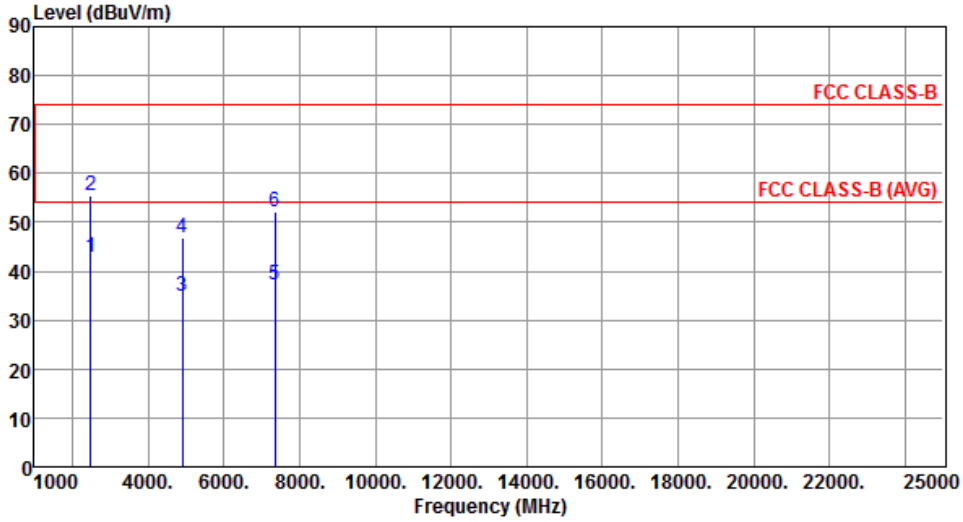
Modulation	VHT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.62	54.00	-1.38	55.84	-3.22	Average	119	215
2	2483.50	65.23	74.00	-8.77	68.45	-3.22	Peak	119	215
3	4904.00	34.89	54.00	-19.11	31.24	3.65	Average	100	63
4	4904.00	46.53	74.00	-27.47	42.88	3.65	Peak	100	63
5	7356.00	38.10	54.00	-15.90	29.40	8.70	Average	100	102
6	7356.00	51.06	74.00	-22.94	42.36	8.70	Peak	100	102

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT40	Test Freq. (MHz)	2452
Polarization	Vertical		



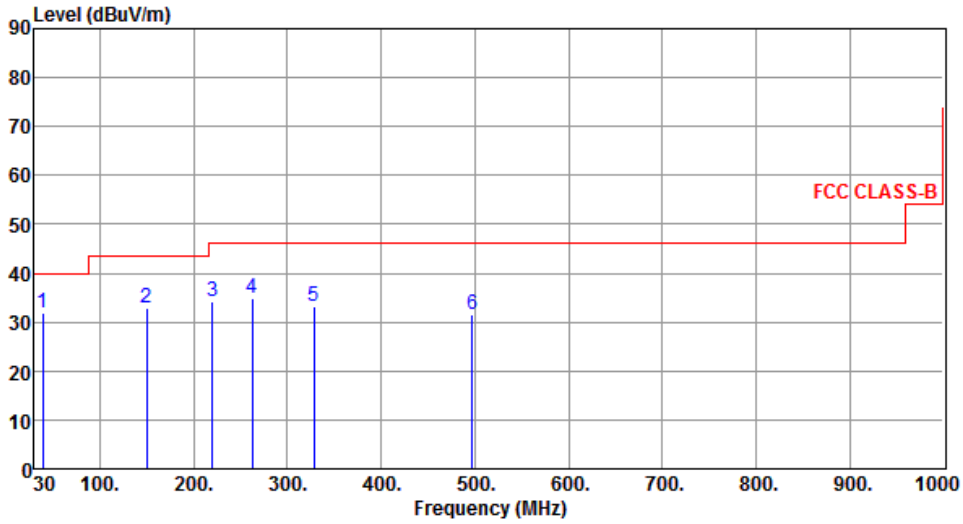
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	42.86	54.00	-11.14	46.08	-3.22	Average	100	62
2	2483.50	55.40	74.00	-18.60	58.62	-3.22	Peak	100	62
3	4904.00	34.86	54.00	-19.14	31.21	3.65	Average	100	327
4	4904.00	46.90	74.00	-27.10	43.25	3.65	Peak	100	327
5	7356.00	37.06	54.00	-16.94	28.36	8.70	Average	100	284
6	7356.00	52.26	74.00	-21.74	43.56	8.70	Peak	100	284

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Beamforming mode

3.5.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)

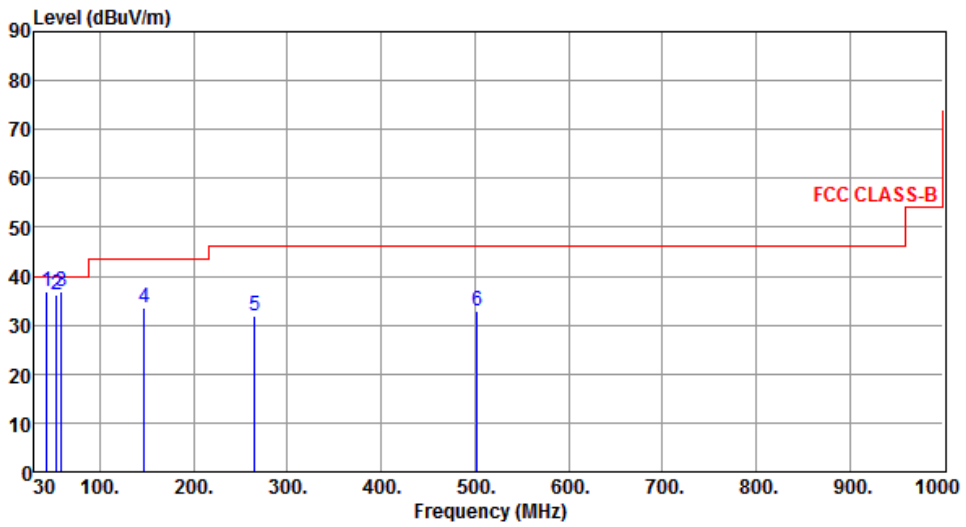
Modulation	VHT40	**Test Freq. (MHz)**	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	39.35	31.82	40.00	-8.18	40.00	-8.18	Peak	---	---
2	149.85	32.85	43.50	-10.65	41.20	-8.35	Peak	---	---
3	219.62	34.21	46.00	-11.79	45.07	-10.86	Peak	---	---
4	262.86	34.85	46.00	-11.15	43.76	-8.91	Peak	---	---
5	328.54	33.27	46.00	-12.73	40.25	-6.98	Peak	---	---
6	497.28	31.57	46.00	-14.43	34.53	-2.96	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	2437
Polarization	Vertical		

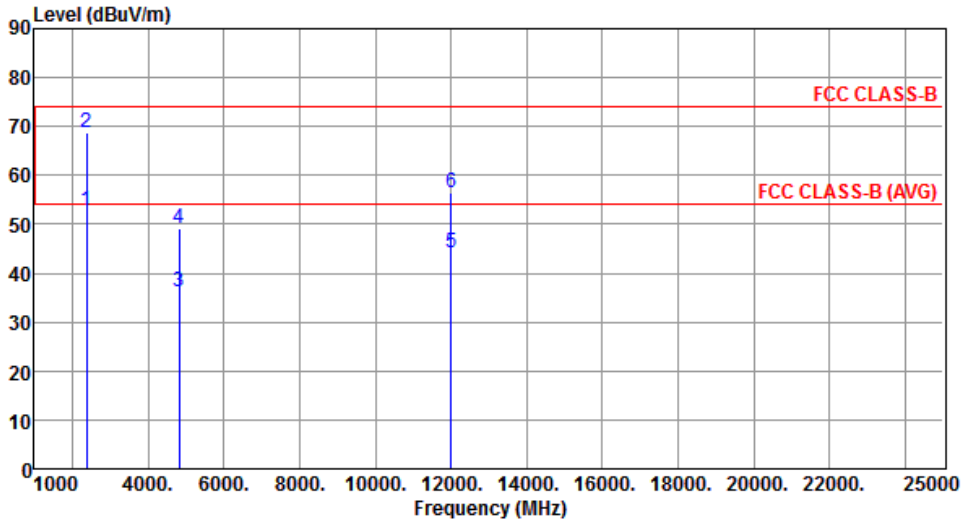


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.92	36.96	40.00	-3.04	44.82	-7.86	Peak	---	---
2	53.95	36.04	40.00	-3.96	44.06	-8.02	Peak	100	19
3	59.25	36.96	40.00	-3.04	45.57	-8.61	QP	100	21
4	146.85	33.53	43.50	-9.97	41.96	-8.43	Peak	---	---
5	265.28	31.96	46.00	-14.04	40.76	-8.80	Peak	---	---
6	502.85	32.96	46.00	-13.04	35.69	-2.73	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

3.5.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

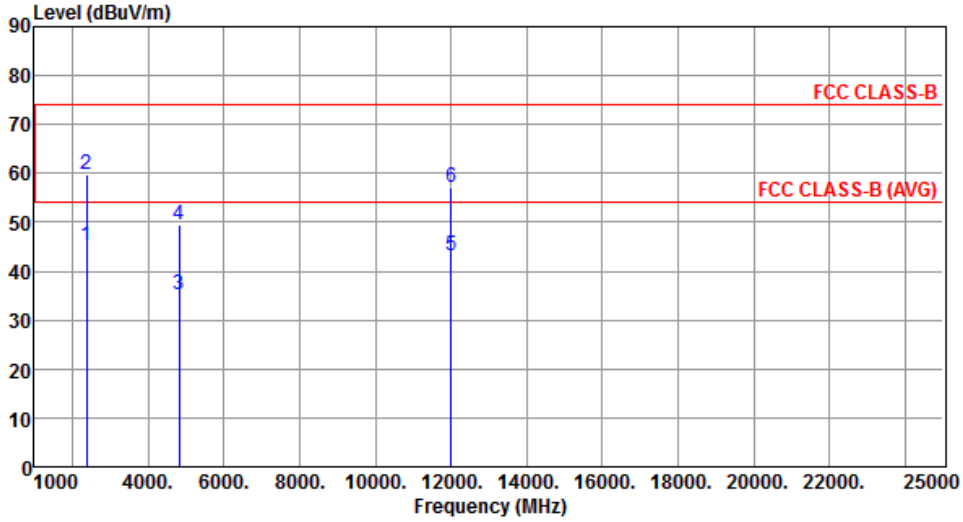
Modulation	VHT20	**Test Freq. (MHz)**	2412
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.94	54.00	-1.06	56.01	-3.07	Average	103	218
2	2390.00	68.75	74.00	-5.25	71.82	-3.07	Peak	103	218
3	4824.00	36.10	54.00	-17.90	32.57	3.53	Average	100	104
4	4824.00	49.07	74.00	-24.93	45.54	3.53	Peak	100	104
5	12010.00	44.07	54.00	-9.93	30.81	13.26	Average	100	107
6	12010.00	56.54	74.00	-17.46	43.28	13.26	Peak	100	107

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

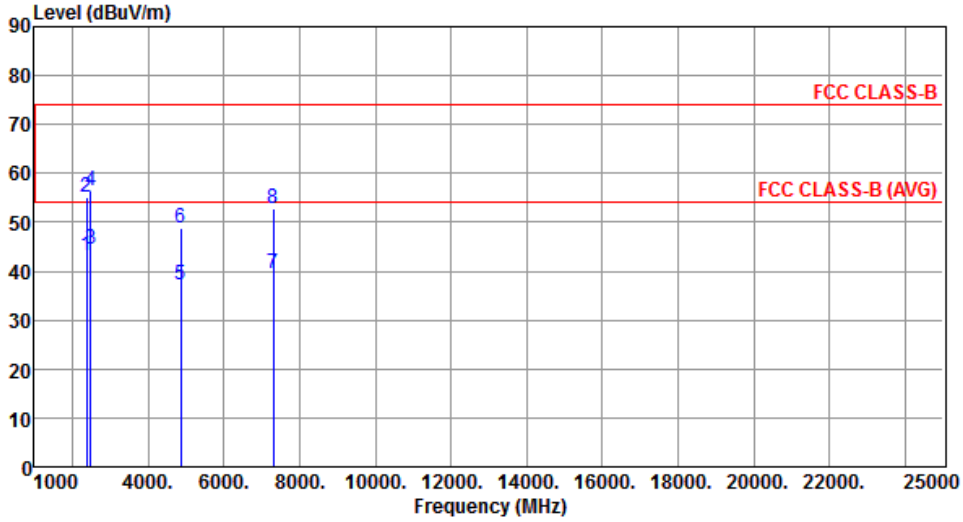
Modulation	VHT20	Test Freq. (MHz)	2412
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	45.17	54.00	-8.83	48.24	-3.07	Average	353	254
2	2390.00	59.79	74.00	-14.21	62.86	-3.07	Peak	353	254
3	4824.00	35.35	54.00	-18.65	31.82	3.53	Average	100	158
4	4824.00	49.38	74.00	-24.62	45.85	3.53	Peak	100	158
5	12010.00	43.07	54.00	-10.93	29.81	13.26	Average	100	154
6	12010.00	57.11	74.00	-16.89	43.85	13.26	Peak	100	154

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

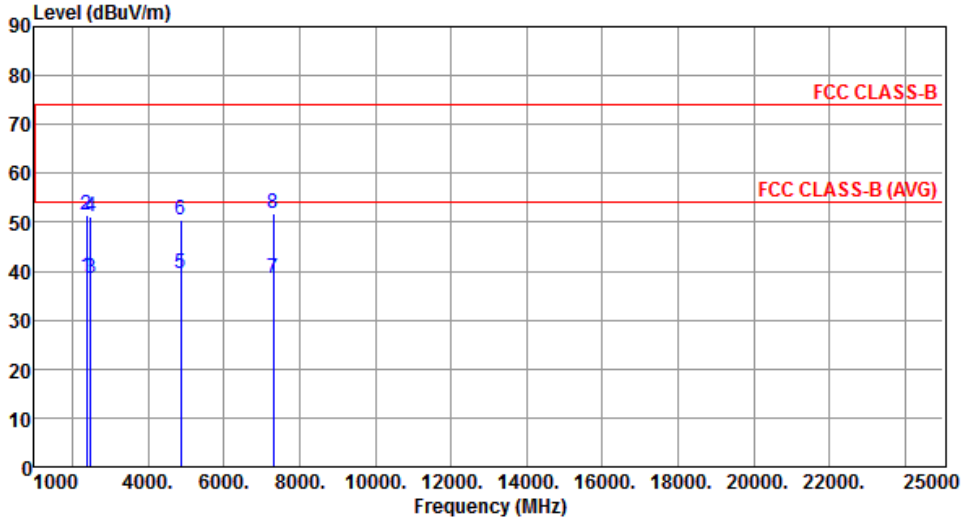
Modulation	VHT20	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.17	54.00	-10.83	46.24	-3.07	Average	150	231
2	2390.00	55.24	74.00	-18.76	58.31	-3.07	Peak	150	231
3	2483.50	44.44	54.00	-9.56	47.66	-3.22	Average	150	231
4	2483.50	56.35	74.00	-17.65	59.57	-3.22	Peak	150	231
5	4874.00	37.29	54.00	-16.71	33.69	3.60	Average	105	98
6	4874.00	48.98	74.00	-25.02	45.38	3.60	Peak	105	98
7	7311.00	39.39	54.00	-14.61	30.57	8.82	Average	100	103
8	7311.00	52.70	74.00	-21.30	43.88	8.82	Peak	100	103

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

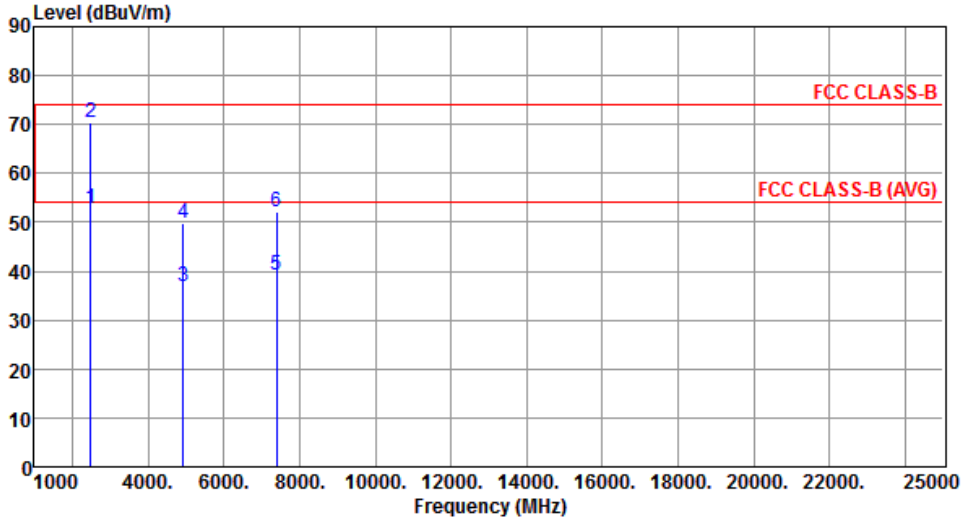
Modulation	VHT20	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	38.79	54.00	-15.21	41.86	-3.07	Average	341	266
2	2390.00	51.51	74.00	-22.49	54.58	-3.07	Peak	341	266
3	2483.50	38.60	54.00	-15.40	41.82	-3.22	Average	341	266
4	2483.50	51.17	74.00	-22.83	54.39	-3.22	Peak	341	266
5	4874.00	39.49	54.00	-14.51	35.89	3.60	Average	100	158
6	4874.00	50.55	74.00	-23.45	46.95	3.60	Peak	100	158
7	7311.00	38.39	54.00	-15.61	29.57	8.82	Average	100	162
8	7311.00	51.70	74.00	-22.30	42.88	8.82	Peak	100	162

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

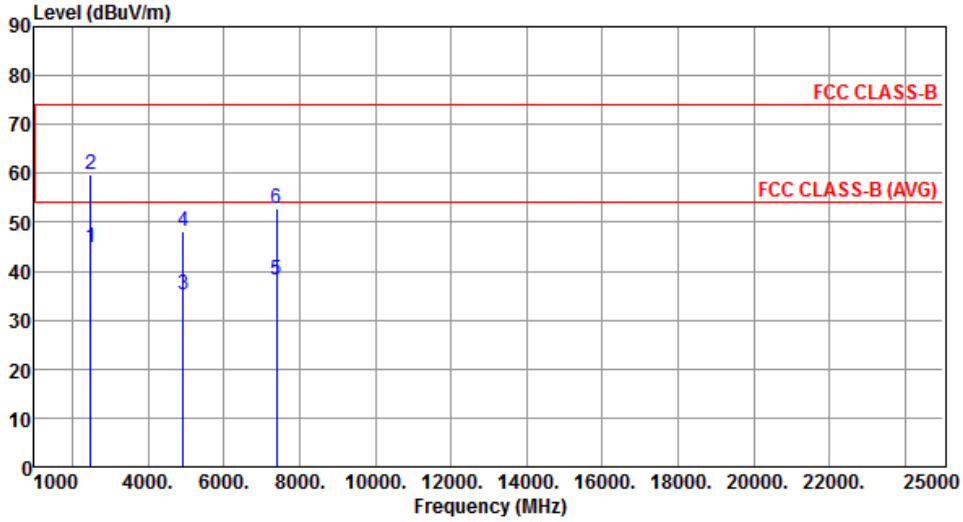
Modulation	VHT20	Test Freq. (MHz)	2462
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.70	54.00	-1.30	55.92	-3.22	Average	146	228
2	2483.50	70.26	74.00	-3.74	73.48	-3.22	Peak	146	228
3	4924.00	36.99	54.00	-17.01	33.28	3.71	Average	100	107
4	4924.00	49.67	74.00	-24.33	45.96	3.71	Peak	100	107
5	7386.00	39.12	54.00	-14.88	30.57	8.55	Average	100	101
6	7386.00	52.13	74.00	-21.87	43.58	8.55	Peak	100	101

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT20	Test Freq. (MHz)	2462
Polarization	Vertical		

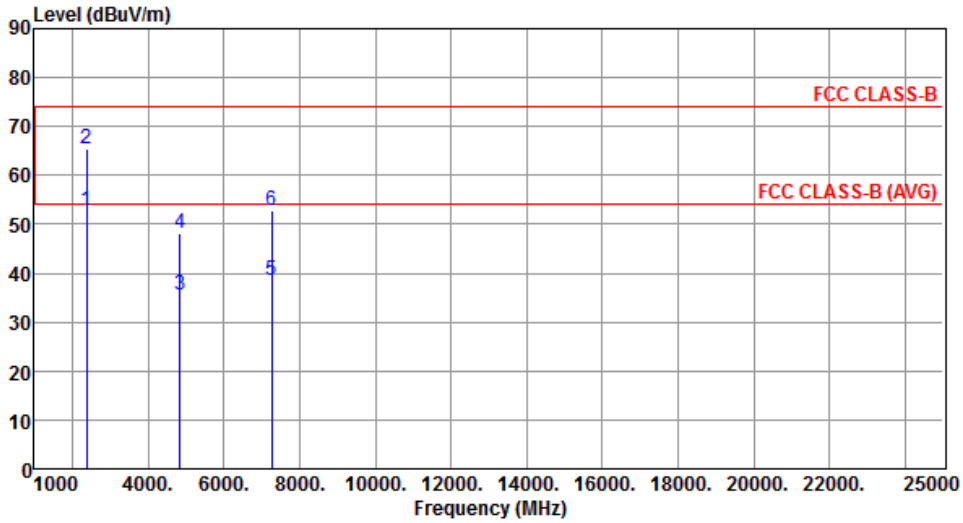


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	44.99	54.00	-9.01	48.21	-3.22	Average	359	259
2	2483.50	59.63	74.00	-14.37	62.85	-3.22	Peak	359	259
3	4924.00	35.30	54.00	-18.70	31.59	3.71	Average	100	151
4	4924.00	48.32	74.00	-25.68	44.61	3.71	Peak	100	151
5	7386.00	38.18	54.00	-15.82	29.63	8.55	Average	100	155
6	7386.00	52.75	74.00	-21.25	44.20	8.55	Peak	100	155

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.5.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

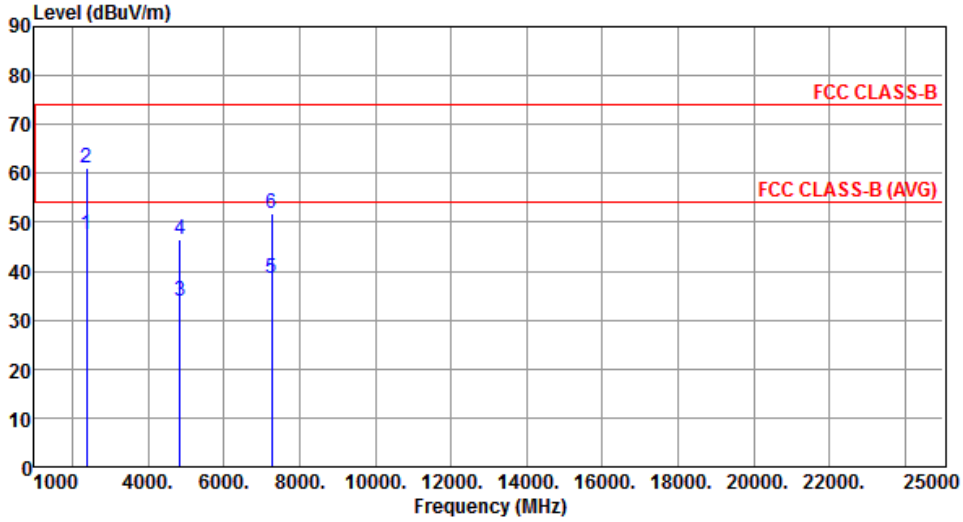
Modulation	VHT40	**Test Freq. (MHz)**	2422
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.82	54.00	-1.18	55.89	-3.07	Average	180	213
2	2390.00	65.54	74.00	-8.46	68.61	-3.07	Peak	180	213
3	4844.00	35.42	54.00	-18.58	31.86	3.56	Average	100	110
4	4844.00	48.14	74.00	-25.86	44.58	3.56	Peak	100	110
5	7266.00	38.50	54.00	-15.50	29.63	8.87	Average	100	104
6	7266.00	52.76	74.00	-21.24	43.89	8.87	Peak	100	104

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

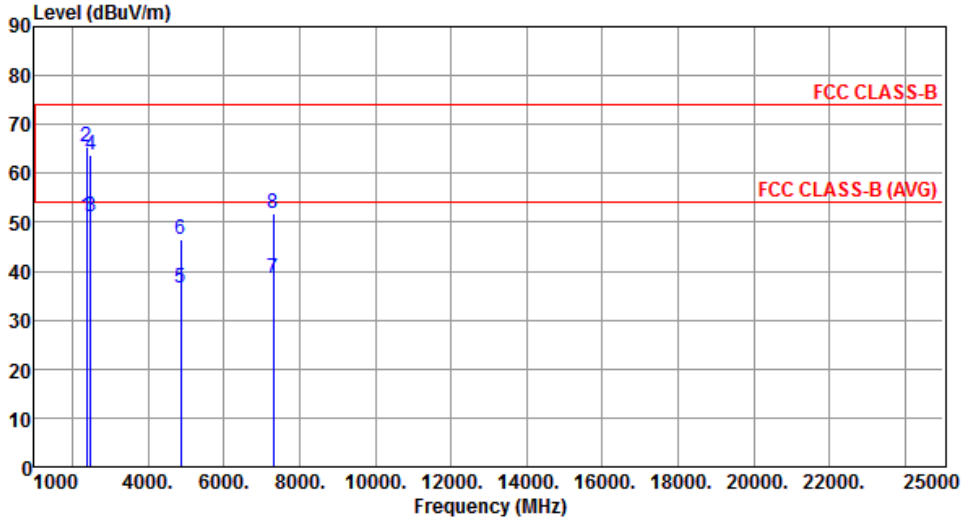
Modulation	VHT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	47.42	54.00	-6.58	50.49	-3.07	Average	354	153
2	2390.00	61.27	74.00	-12.73	64.34	-3.07	Peak	354	153
3	4844.00	33.77	54.00	-20.23	30.21	3.56	Average	100	169
4	4844.00	46.42	74.00	-27.58	42.86	3.56	Peak	100	169
5	7266.00	38.69	54.00	-15.31	29.82	8.87	Average	100	171
6	7266.00	51.83	74.00	-22.17	42.96	8.87	Peak	100	171

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

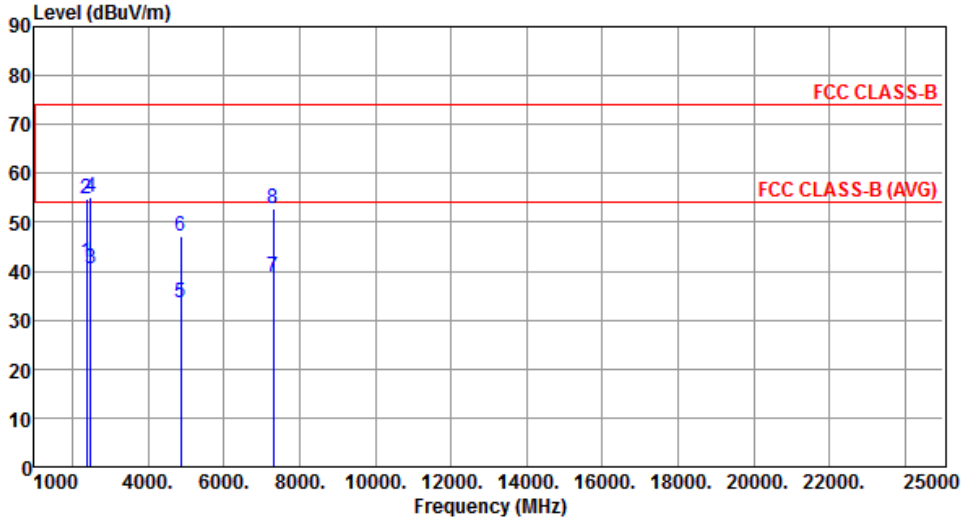
Modulation	VHT40	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	51.31	54.00	-2.69	54.38	-3.07	Average	162	219
2	2390.00	65.50	74.00	-8.50	68.57	-3.07	Peak	162	219
3	2483.50	51.05	54.00	-2.95	54.27	-3.22	Average	162	219
4	2483.50	63.67	74.00	-10.33	66.89	-3.22	Peak	162	219
5	4874.00	36.46	54.00	-17.54	32.86	3.60	Average	100	108
6	4874.00	46.46	74.00	-27.54	42.86	3.60	Peak	100	108
7	7311.00	38.67	54.00	-15.33	29.85	8.82	Average	100	105
8	7311.00	51.70	74.00	-22.30	42.88	8.82	Peak	100	105

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

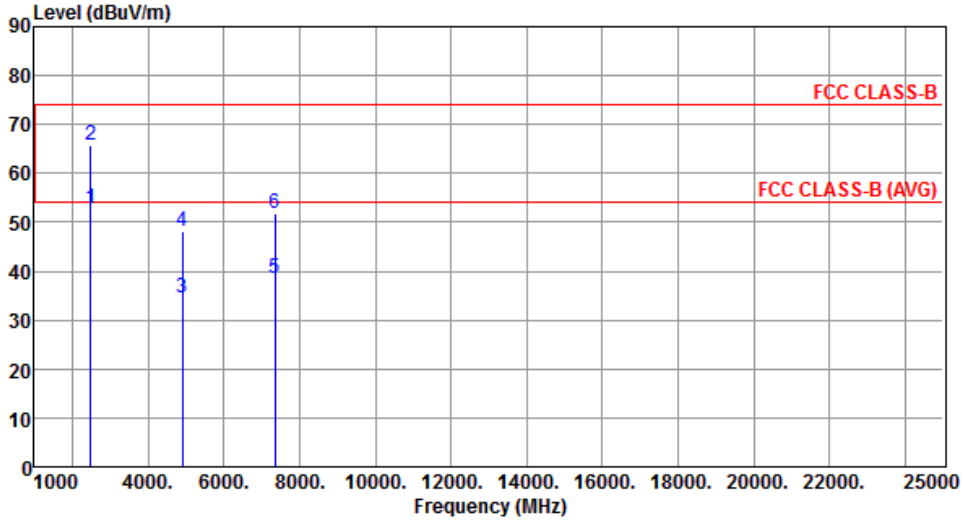
Modulation	VHT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	41.88	54.00	-12.12	44.95	-3.07	Average	344	149
2	2390.00	54.78	74.00	-19.22	57.85	-3.07	Peak	349	149
3	2483.50	40.67	54.00	-13.33	43.89	-3.22	Average	344	149
4	2483.50	55.12	74.00	-18.88	58.34	-3.22	Peak	344	149
5	4874.00	33.42	54.00	-20.58	29.82	3.60	Average	100	155
6	4874.00	47.18	74.00	-26.82	43.58	3.60	Peak	100	155
7	7311.00	38.74	54.00	-15.26	29.92	8.82	Average	100	158
8	7311.00	52.71	74.00	-21.29	43.89	8.82	Peak	100	158

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

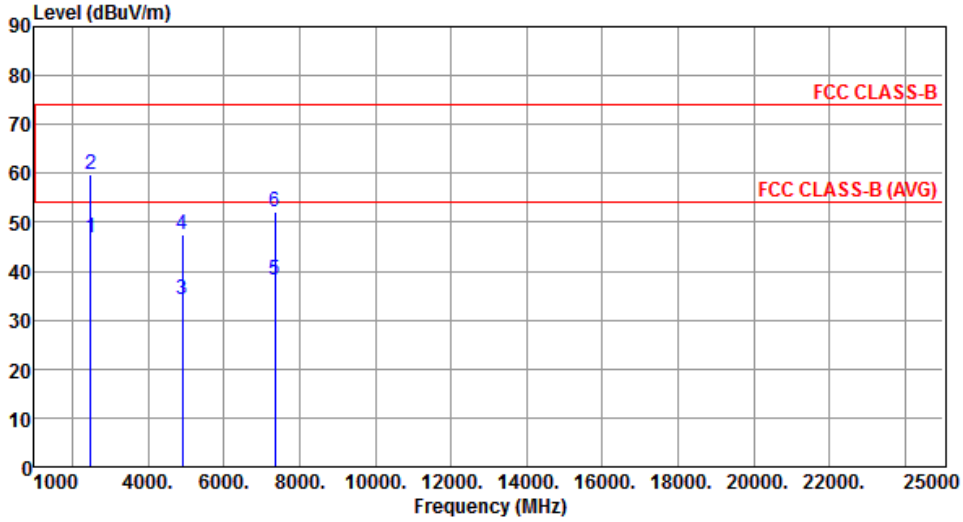
Modulation	VHT40	Test Freq. (MHz)	2452
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.84	54.00	-1.16	56.06	-3.22	Average	158	216
2	2483.50	65.64	74.00	-8.36	68.86	-3.22	Peak	158	216
3	4904.00	34.50	54.00	-19.50	30.85	3.65	Average	100	112
4	4904.00	48.23	74.00	-25.77	44.58	3.65	Peak	100	112
5	7356.00	38.54	54.00	-15.46	29.84	8.70	Average	100	104
6	7356.00	51.97	74.00	-22.03	43.27	8.70	Peak	100	104

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT40	Test Freq. (MHz)	2452
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	46.67	54.00	-7.33	49.89	-3.22	Average	344	151
2	2483.50	59.63	74.00	-14.37	62.85	-3.22	Peak	344	151
3	4904.00	34.22	54.00	-19.78	30.57	3.65	Average	100	157
4	4904.00	47.51	74.00	-26.49	43.86	3.65	Peak	100	157
5	7356.00	38.26	54.00	-15.74	29.56	8.70	Average	100	155
6	7356.00	52.16	74.00	-21.84	43.46	8.70	Peak	100	155

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

3.6 Emissions in Non-Restricted Frequency Bands

3.6.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.6.2 Test Procedures

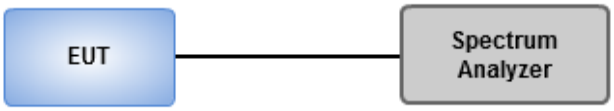
Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.6.3 Test Setup

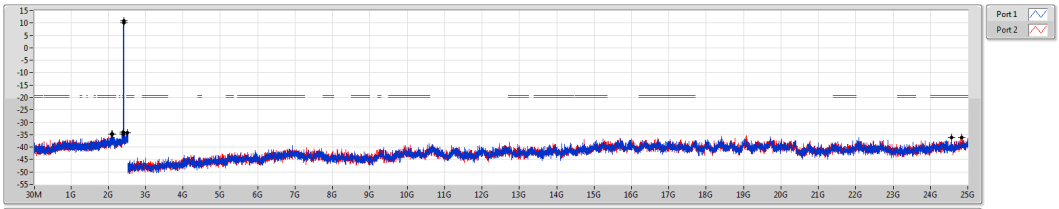


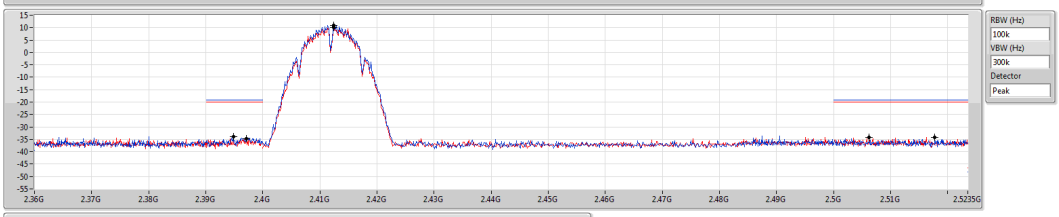
Non-beamforming mode

3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

2412MHz

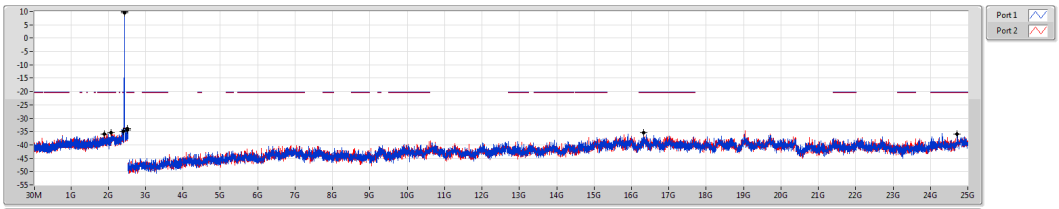


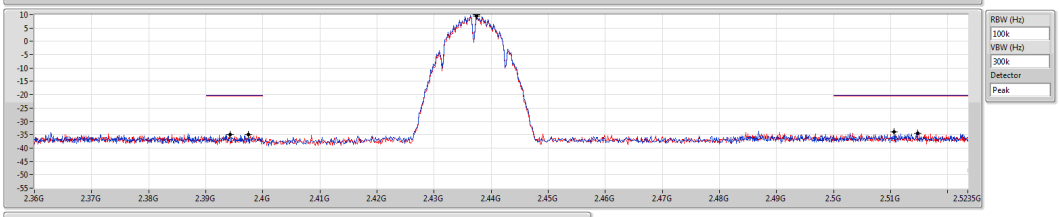


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41236G	10.87	-19.13	2.1037G	-34.66	2.3948G	-34.07	2.51774G	-34.30	24.56171G	-36.25	1
2.41236G	9.95	-20.05	2.09438G	-34.77	2.39712G	-34.65	2.50622G	-34.27	24.82862G	-36.16	2

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

2437MHz

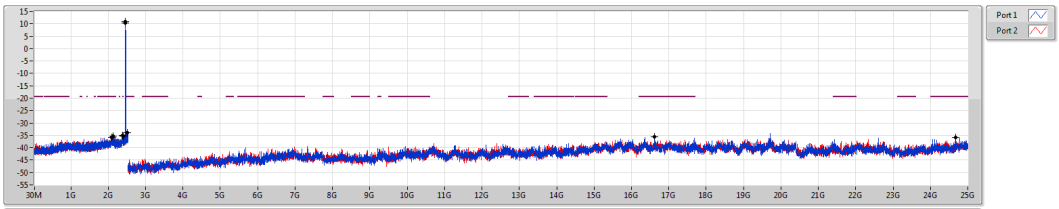


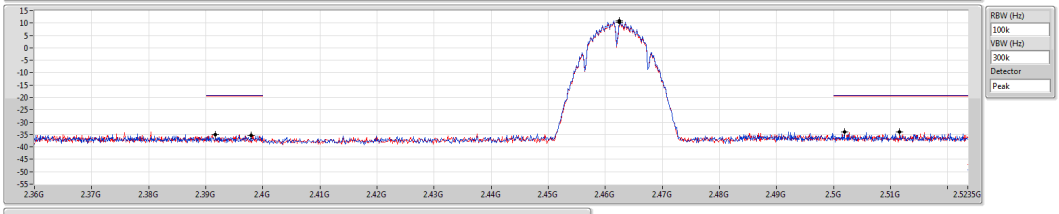


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43741G	9.88	-20.12	2.07807G	-35.45	2.39752G	-35.01	2.51062G	-33.90	16.3325G	-35.42	1
2.43741G	9.47	-20.53	1.89051G	-35.85	2.39424G	-34.95	2.5147G	-34.33	24.71062G	-35.99	2

802.11b_Nss1,(1Mbps)_2TX **CSE NdB**

2462MHz

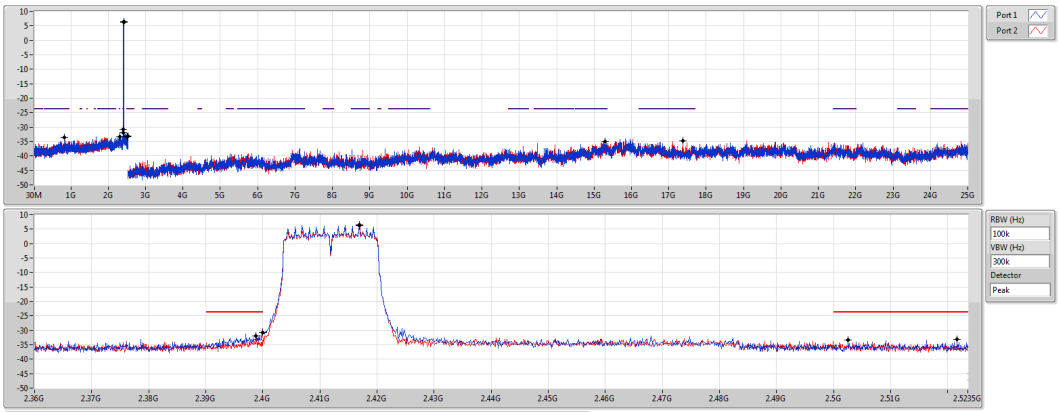




Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46246G	10.85	-19.15	2.09089G	-35.74	2.39792G	-35.28	2.5019G	-33.95	16.61346G	-35.50	1
2.46246G	10.45	-19.55	2.13632G	-35.21	2.39168G	-34.91	2.51158G	-34.00	24.67128G	-35.98	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

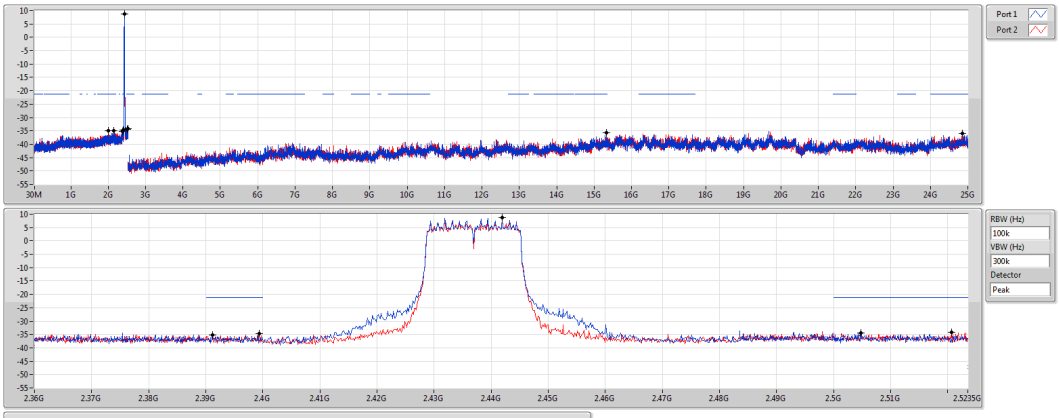
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41687G	6.52	-23.48	824.53M	-33.60	2.39992G	-30.80	2.50254G	-33.41	15.29015G	-35.10	1
2.41687G	6.23	-23.77	2.30874G	-33.47	2.3988G	-31.96	2.52166G	-33.15	17.37204G	-34.77	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

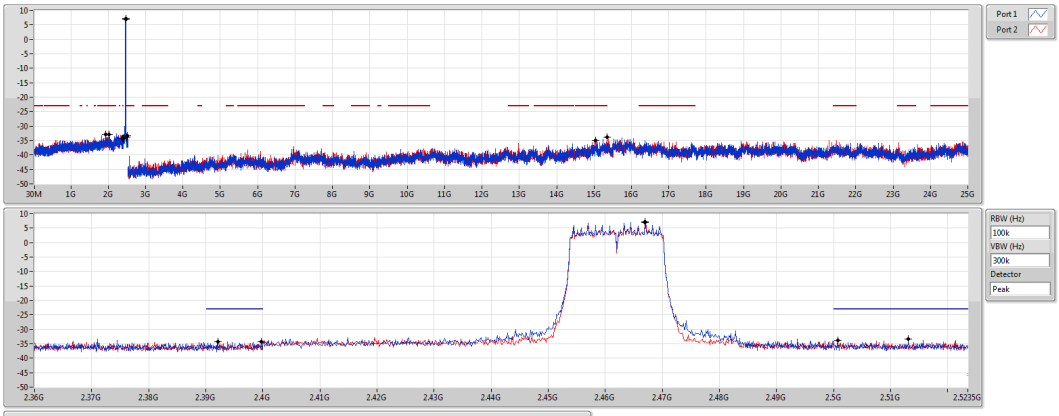
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44192G	8.66	-21.34	2.00351G	-34.95	2.3912G	-35.12	2.50478G	-34.55	15.32949G	-35.68	1
2.44192G	8.67	-21.33	2.14448G	-35.01	2.39936G	-34.79	2.52062G	-34.23	24.85671G	-36.08	2

802.11g_Nss1,(6Mbps)_2TX **CSE NdB**

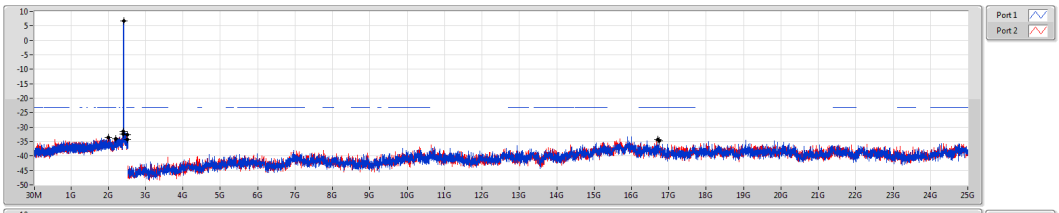
2462MHz

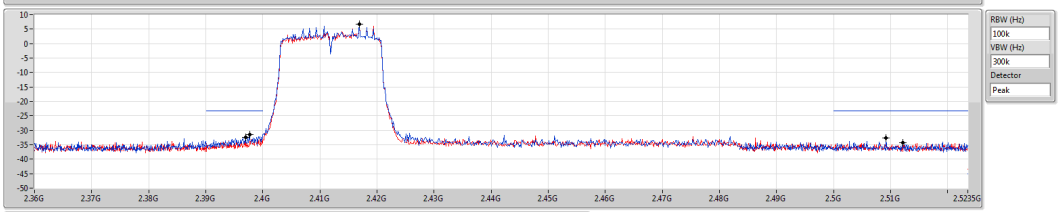


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46697G	7.20	-22.80	2.01866G	-32.81	2.39208G	-34.29	2.5131G	-33.39	15.34353G	-33.81	1
2.46697G	6.97	-23.03	1.93944G	-32.88	2.39976G	-34.38	2.5007G	-33.80	15.04572G	-35.02	2

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

2412MHz

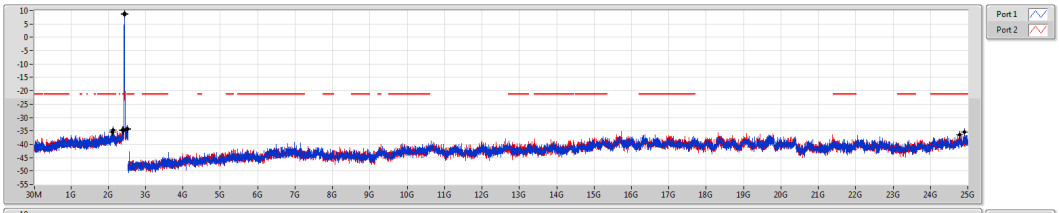


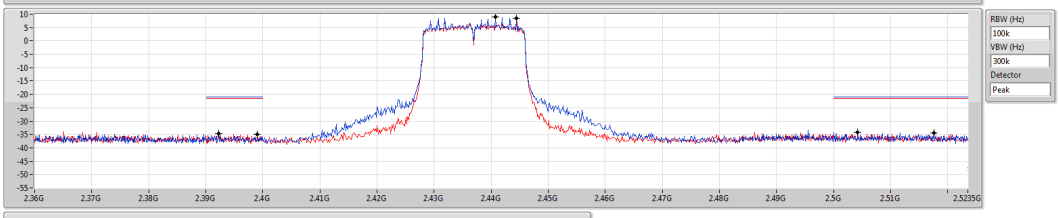


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41687G	6.65	-23.35	2.0105G	-33.53	2.39768G	-31.48	2.50918G	-32.67	16.70336G	-34.41	1
2.41687G	6.65	-23.35	2.19807G	-34.01	2.39696G	-32.41	2.51206G	-34.39	16.74831G	-34.84	2

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

2437MHz

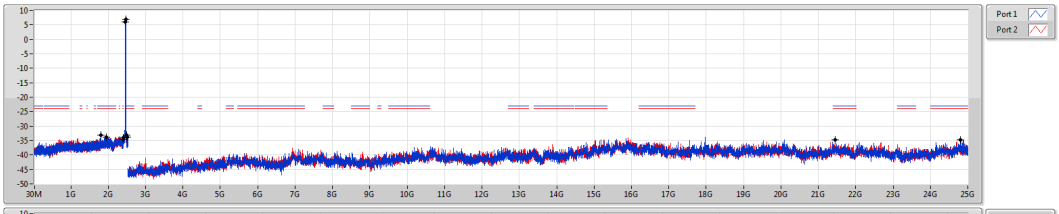


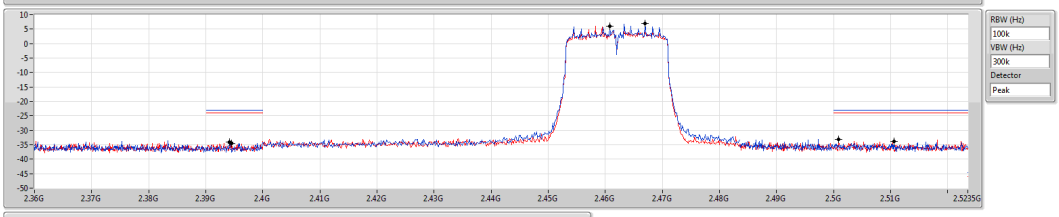


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44075G	8.90	-21.10	2.12933G	-34.66	2.39224G	-34.70	2.51758G	-34.32	24.91571G	-35.51	1
2.44442G	8.48	-21.52	2.10603G	-35.39	2.39904G	-34.97	2.50422G	-34.12	24.78366G	-36.51	2

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

2462MHz

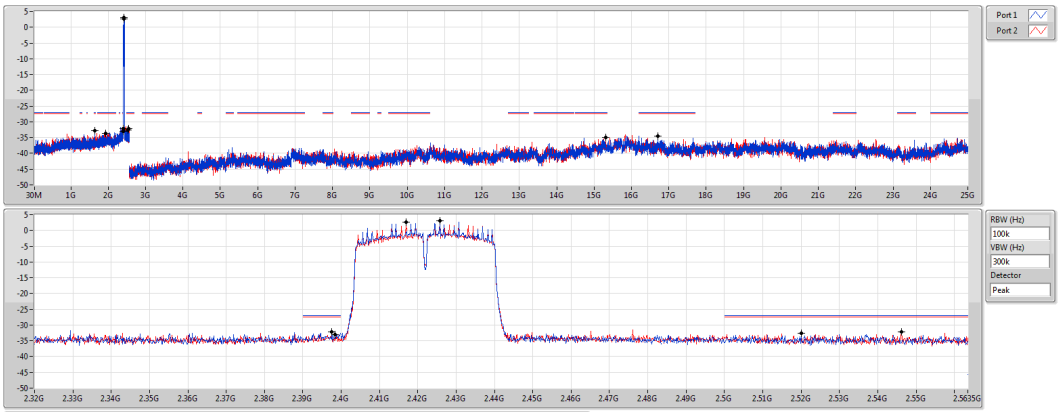




Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46697G	6.96	-23.04	1.79847G	-33.12	2.39416G	-34.05	2.51054G	-33.83	24.80614G	-34.72	1
2.46079G	6.10	-23.90	1.9441G	-33.93	2.39456G	-34.52	2.50086G	-33.20	21.44309G	-34.83	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

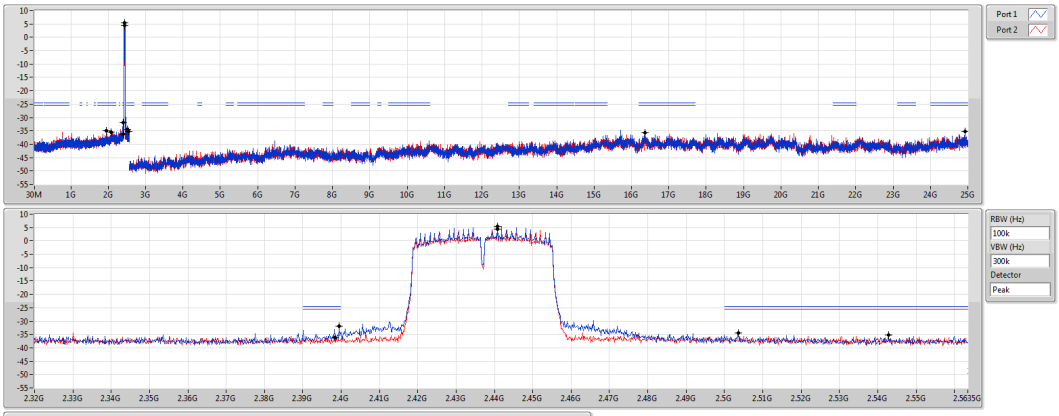
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.42572G	3.03	-26.97	1.63415G	-32.77	2.3976G	-32.22	2.51998G	-32.52	16.6985G	-34.52	1
2.41687G	2.54	-27.46	1.93986G	-33.66	2.3984G	-32.95	2.54622G	-32.26	15.30743G	-34.86	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

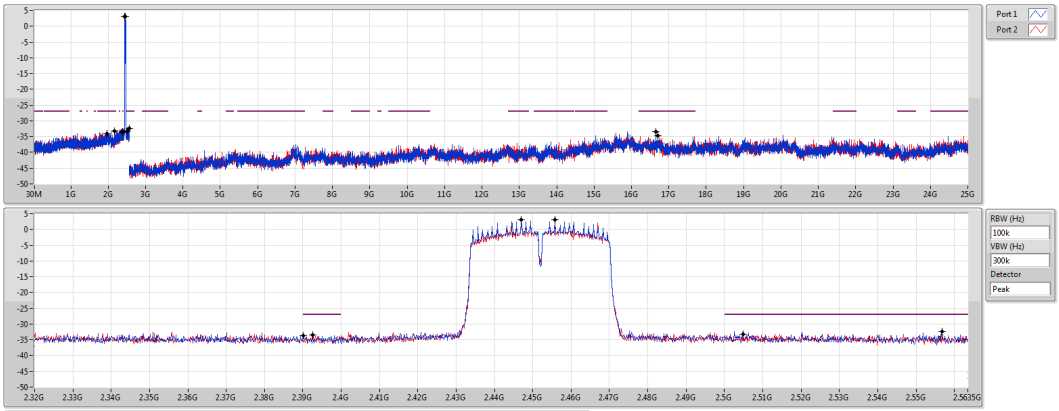
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44075G	5.46	-24.54	1.9536G	-35.06	2.39952G	-32.00	2.50366G	-34.54	24.91867G	-35.32	1
2.44075G	4.51	-25.49	2.07154G	-35.33	2.3984G	-36.31	2.54286G	-35.23	16.35634G	-35.73	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

2452MHz



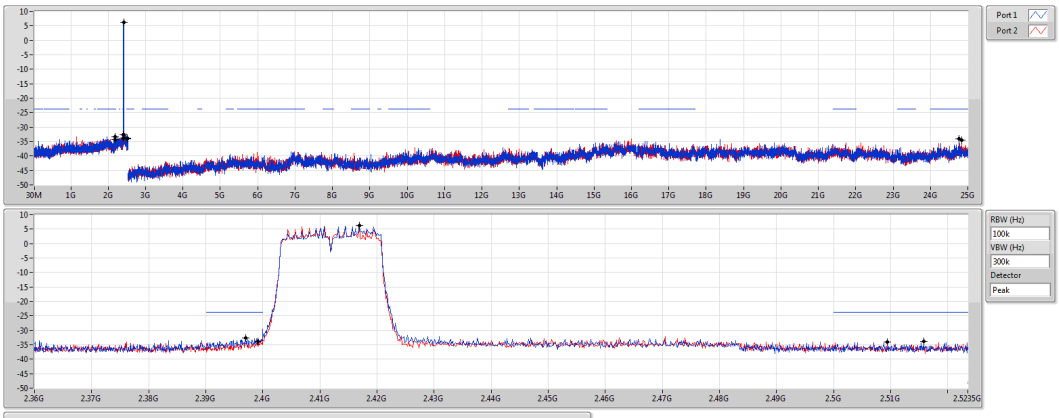
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.45578G	3.05	-26.95	2.1723G	-33.19	2.39008G	-33.58	2.55678G	-32.33	16.65643G	-33.54	1
2.44693G	3.12	-26.88	1.96162G	-34.06	2.39264G	-33.40	2.50494G	-33.20	16.7013G	-34.85	2

Beamforming mode

3.6.5 Unwanted Emissions into Non-Restricted Frequency Bands

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

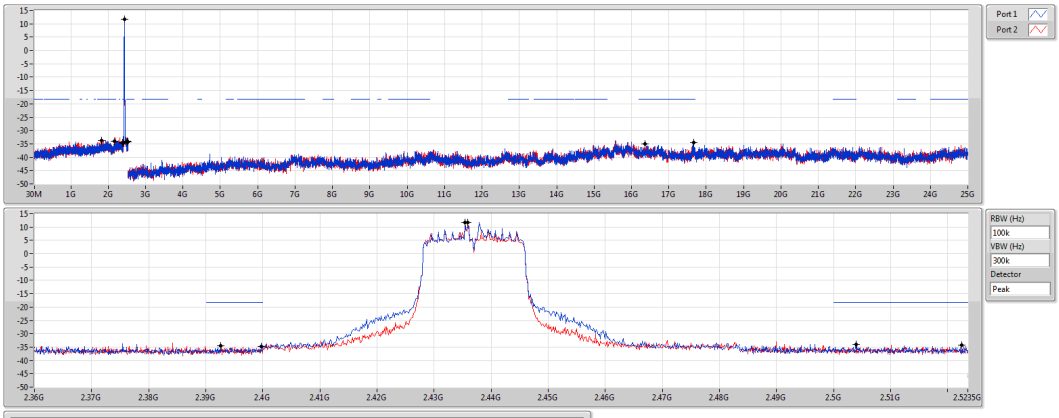
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41687G	6.31	-23.69	2.18176G	-33.32	2.39696G	-32.61	2.51574G	-33.85	24.75838G	-34.14	1
2.41687G	6.35	-23.65	2.19108G	-34.28	2.39912G	-33.81	2.50934G	-34.13	24.83705G	-34.60	2

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

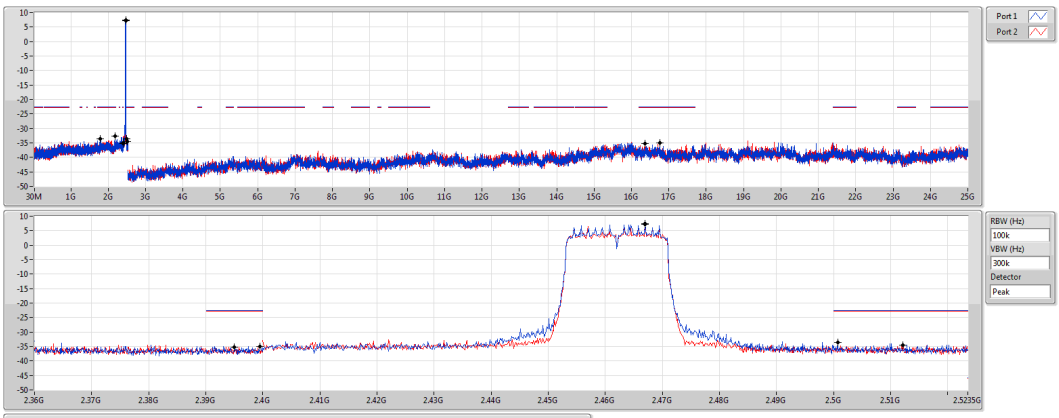
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4354G	11.78	-18.22	1.82643G	-33.72	2.39968G	-34.78	2.52246G	-34.34	17.67266G	-34.42	1
2.43591G	11.79	-18.21	2.16428G	-33.98	2.39264G	-34.39	2.50398G	-34.02	16.35498G	-34.94	2

802.11ac VHT20_Nss1,(MCS0)_2TX **CSE NdB**

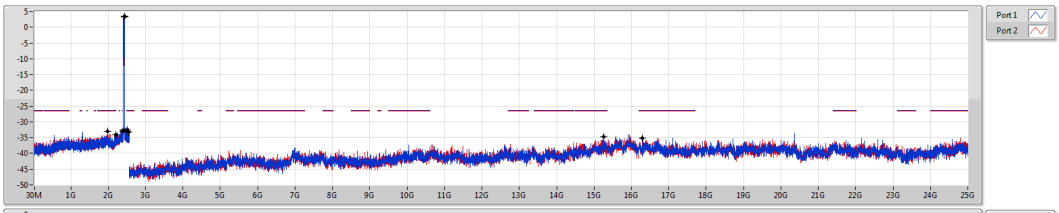
2462MHz

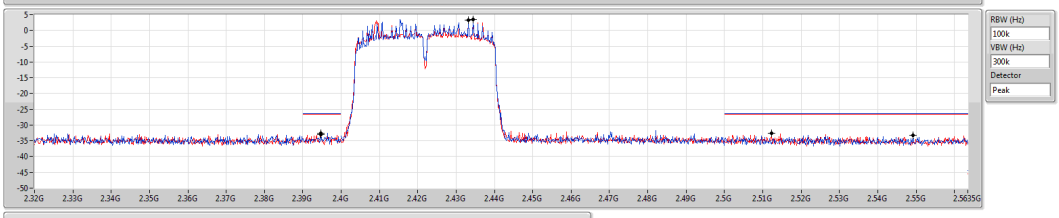


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46697G	7.46	-22.54	1.78449G	-33.54	2.39952G	-34.91	2.5007G	-33.61	16.75393G	-34.99	1
2.46697G	7.18	-22.82	2.18292G	-32.61	2.39496G	-35.24	2.51206G	-34.52	16.3634G	-35.27	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

2422MHz

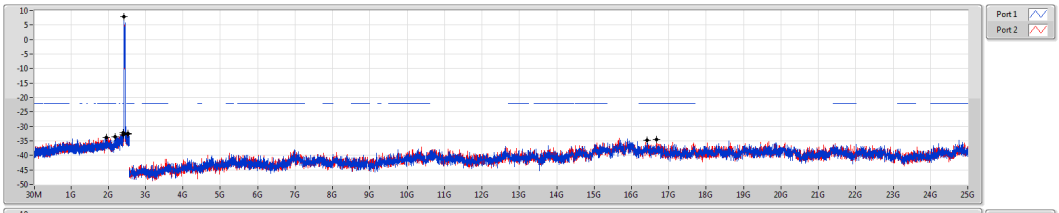


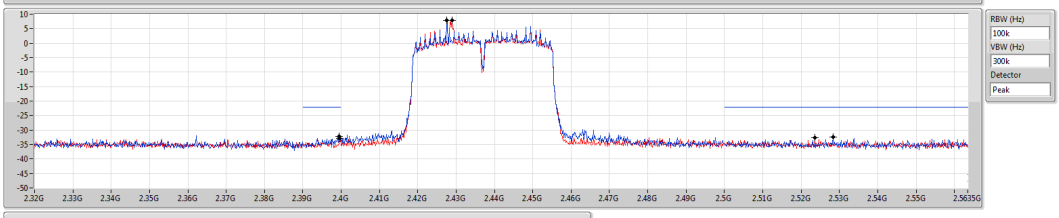


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4344G	3.58	-26.42	1.9891G	-33.09	2.39472G	-32.52	2.54926G	-33.25	15.26256G	-34.68	1
2.43323G	3.35	-26.65	2.19863G	-34.04	2.39472G	-33.13	2.5123G	-32.50	16.29464G	-35.09	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

2437MHz

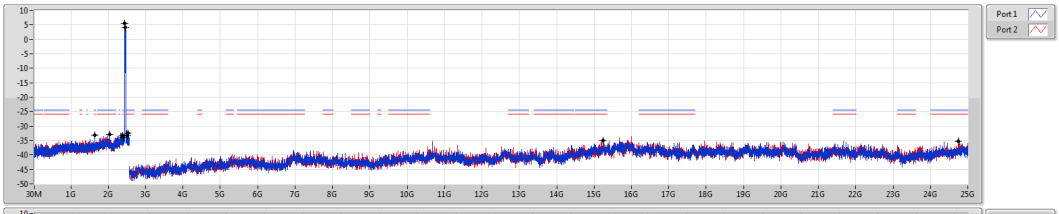


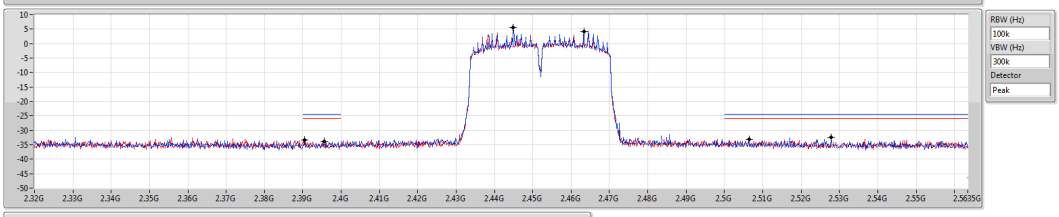


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.42756G	7.81	-22.19	1.95131G	-33.83	2.39952G	-32.15	2.5283G	-32.50	16.41243G	-34.74	1
2.42889G	7.78	-22.22	2.18375G	-33.51	2.39968G	-32.85	2.52366G	-32.68	16.66484G	-34.54	2

802.11ac VHT40_Nss1,(MCS0)_2TX **CSE NdB**

2452MHz





Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44492G	5.53	-24.47	1.63644G	-33.20	2.39552G	-33.92	2.52782G	-32.49	15.23732G	-34.90	1
2.46329G	4.18	-25.82	2.0452G	-32.96	2.3904G	-33.43	2.50638G	-33.12	24.74198G	-35.35	2

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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