FCC Test Report

FCC ID	:	**I88WX3310-B0**
Equipment	:	**Dual-Band Wireless AX Gigabit Access Point / Extender**
Model No.	:	**WX3310-B0**
Brand Name	:	**ZYXEL**
Applicant	:	**Zyxel Communications Corporation**
Address	:	**No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 15.247**
Received Date	:	**Feb. 03, 2020**
Tested Date	:	**Feb. 13 ~ May 21, 2020**

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

Release Record

Report No.	Version	Description	Issued Date
FR020306AC	Rev. 01	Initial issue	Jun. 02, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 19.740MHz 33.94 (Margin -16.06dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2390.00MHz 53.89 (Margin -0.11dB) – AV	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 29.06 ***Beamforming mode*** 28.06	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

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	ax (HE20)	2412-2462	1-11 [11]	2	MCS 0-11
2400-2483.5	ax (HE40)	2422-2452	3-9 [7]	2	MCS 0-11

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.
Note 2: Chip feature :
DSSS-DBPSK, DQPSK, CCK modulation
OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024 QAM modulation.
Note 3: Operating modes of this device are listed as above table.
Note 4: 802.11ax supports beamforming function.

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Antenna Gain (dBi)
1	Ant1(RFPCA242309IMLB901)	PIFA	ipex	0
2	Ant2 (RFPCA242311IMLB901)	PIFA	ipex	0

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: MNC Model: MAUS-1201501801 I/P: 100-240Vac, 50/60Hz, 0.5A O/P: 12Vdc, 1.5A Power Line: DC 1.5m non-shielded without core
2	RJ45 cable	1.5m non-shielded without core

1.1.5 Channel List

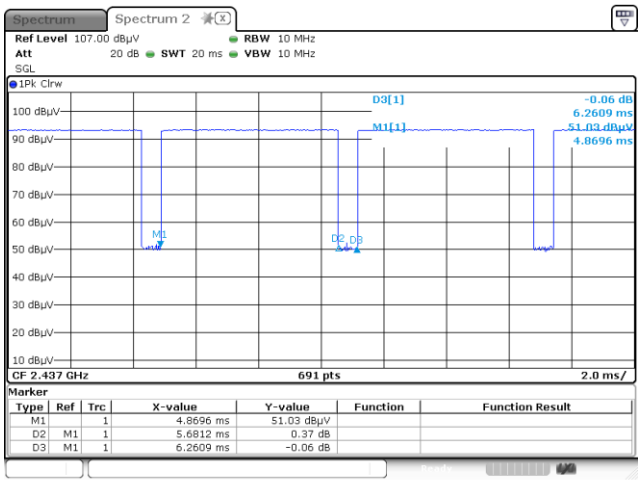
Frequency band (MHz)		2400~2483.5	
802.11a / n HT20 / ax HE20		802.11n HT40 / ax HE40	
Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
1	2412	3	2422
2	2417	4	2427
3	2422	5	2432
4	2427	6	2437
5	2432	7	2442
6	2437	8	2447
7	2442	9	2452
8	2447	---	---
9	2452	---	---
10	2457	---	---
11	2462	---	---

1.1.6 Test Tool and Duty Cycle

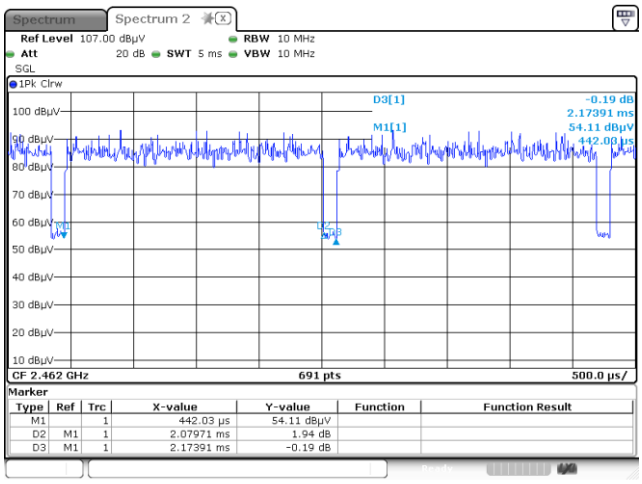
Non-beamforming mode

Test Tool	Mtool, Version: 3.1.0.4		
Duty Cycle and Duty Factor	**Mode**	**Duty cycle (%)**	**Duty factor (dB)**
	11b	90.74%	0.42
	11g	95.67%	0.19
	ax (HE20)	83.47%	0.78
	ax (HE40)	80.19%	0.96

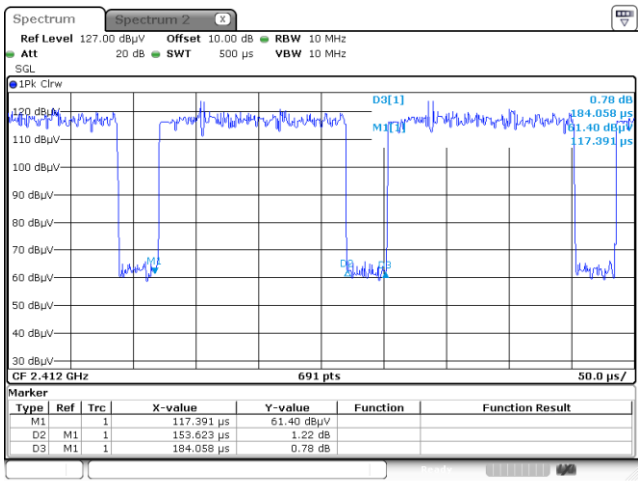
11b



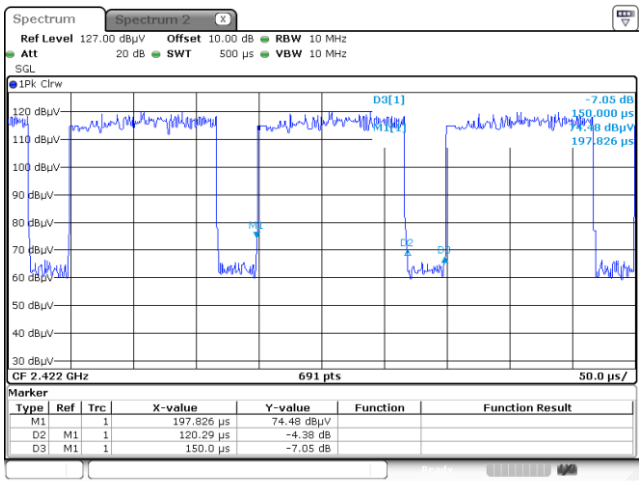
11g



ax HE20

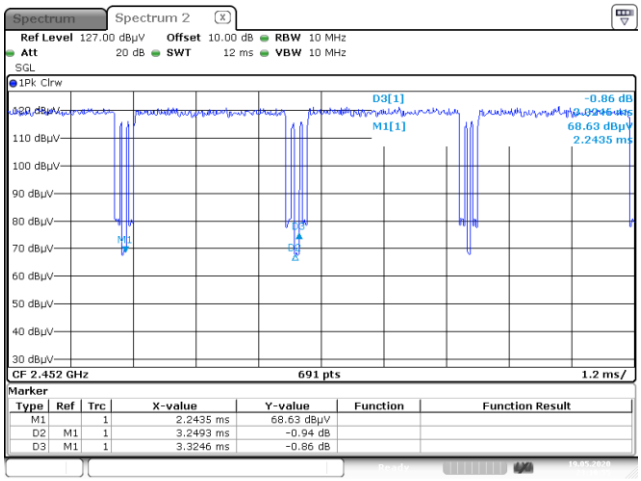
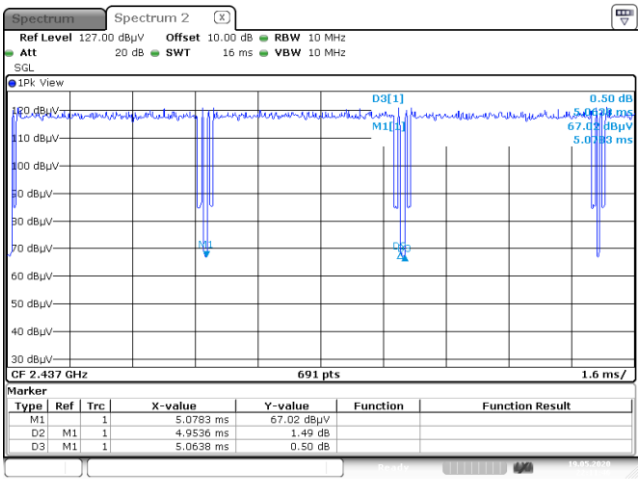


ax HE40



Beamforming mode

Test Tool	Mtool, Version: 3.1.0.4		
Duty Cycle and Duty Factor	**Mode**	**Duty cycle (%)**	**Duty factor (dB)**
	ax (HE20)	97.74%	0.10
	ax (HE40)	97.82%	0.10

ax HE20	**ax HE40**
	

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		Non-beamforming	Beamforming
11b	2412	102	---
11b	2437	102	---
11b	2462	102	---
11g	2412	78	---
11g	2437	106	---
11g	2462	78	---
ax (HE20)	2412	74	74
ax (HE20)	2437	100	100
ax (HE20)	2462	74	74
ax (HE40)	2422	66	66
ax (HE40)	2437	80	80
ax (HE40)	2452	66	66

1.2 Local Support Equipment List

Non-beamforming mode

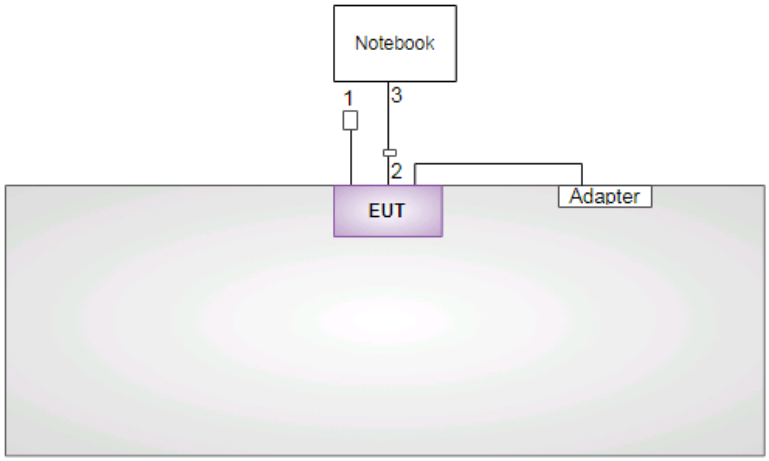
Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	RJ45	ICC	RJ45-1.3m	---	---
2	RJ45	ICC	RJ45-10m	---	---
3	RJ45	ICC	RJ45-1.3m	---	---
4	Notebook	DELL	Latitude E6440	DoC	---

Beamforming mode

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	RJ45	ICC	RJ45-1.3m	---	---
2	RJ45	ICC	RJ45-10m	---	---
3	RJ45	ICC	RJ45-1.3m	---	---
4	BF Client	ZYXEL	WX3310-B0	---	Provided by applicant.
5	Notebook	DELL	Latitude E6440	DoC	---
6	Notebook	DELL	Latitude E5470	DoC	---

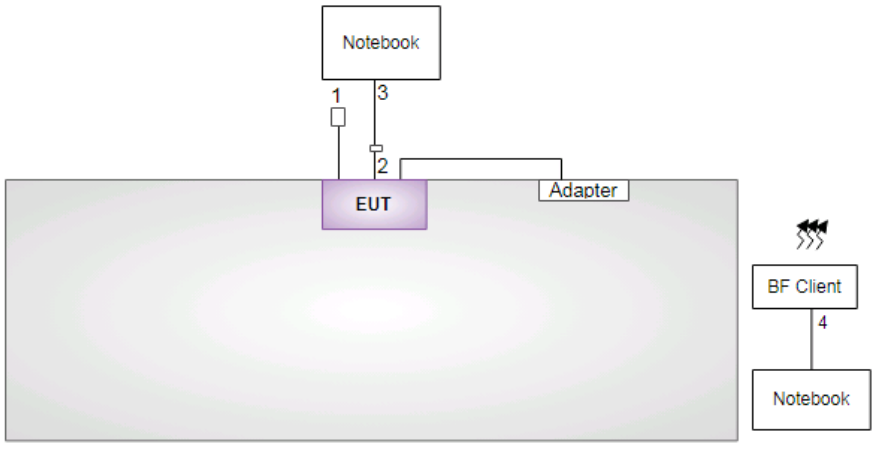
1.3 Test Setup Chart

Non-beamforming mode

Test Setup Diagram


No.	Signal cable / Length (m)
1	RJ45, 1.3m non-shielded with load
2	RJ45, 1.5m non-shielded
3	RJ45, 10m non-shielded

Beamforming mode

Test Setup Diagram


No.	Signal cable / Length (m)
1	RJ45, 1.3m non-shielded with load
2	RJ45, 1.5m non-shielded
3	RJ45, 10m non-shielded
4	RJ45, 1.3m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Mar. 06, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020
LISN	R&S	ENV216	101579	Mar. 08, 2019	Mar. 07, 2020
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 22, 2019	Oct. 21, 2020
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 chamber1 / (03CH01-WS)				
Tested Date	Feb. 13 ~ Apr. 30, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 17, 2019	Dec. 16, 2020
Receiver	R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 12, 2019	Jul. 11, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 12, 2019	Dec. 11, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980225	Jul. 09, 2019	Jul. 08, 2020
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 07, 2019	Oct. 06, 2020
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 07, 2019	Oct. 06, 2020
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	May 21, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Spectrum Analyzer	R&S	FSV40	101499	Jan. 09, 2020	Jan. 08, 2021
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 12, 2019	Dec. 11, 2020
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 02, 2019	Dec. 01, 2020
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

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 / 59%	Alex Tsai
Radiated Emissions	03CH01-WS	22-23°C / 65%	Akun Chung Roger Lu
RF Conducted	TH01-WS	24°C / 68%	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 and Beamforming mode had been covered during the pretest of radiated emission. The worst mode is Non-beamforming thus Non-beamforming was tested in radiated emission test item and record in this test report.

Non-beamforming mode

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11g	2437	6 Mbps	---
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	---
Maximum Output Power	11b 11g ax HE20 ax HE40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	---
Maximum Output Power	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	---
Radiated Emissions >1GHz 6dB bandwidth Power spectral density	11b 11g ax HE20 ax HE40	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
Maximum Output Power	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	---
Power spectral density	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	---

3 Transmitter Test Results

3.1 Conducted Emissions

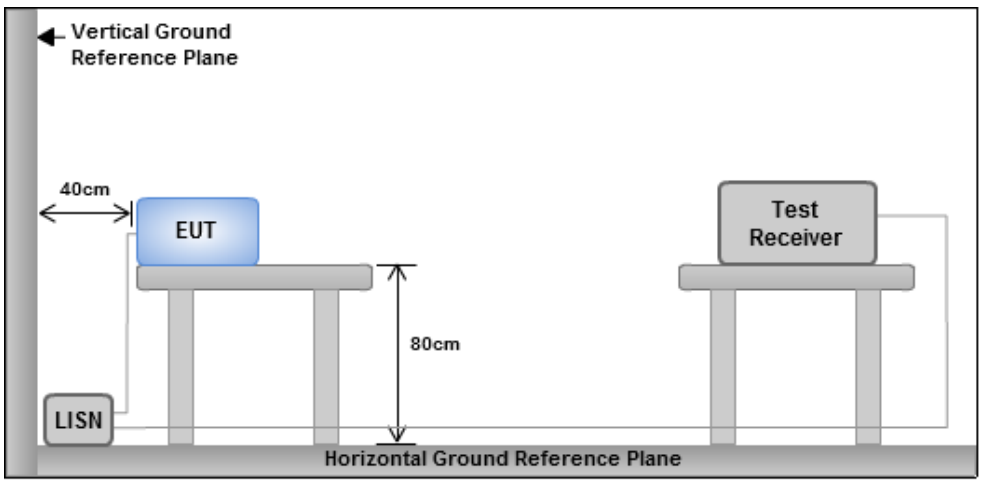
3.1.1 Limit of Conducted Emissions

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

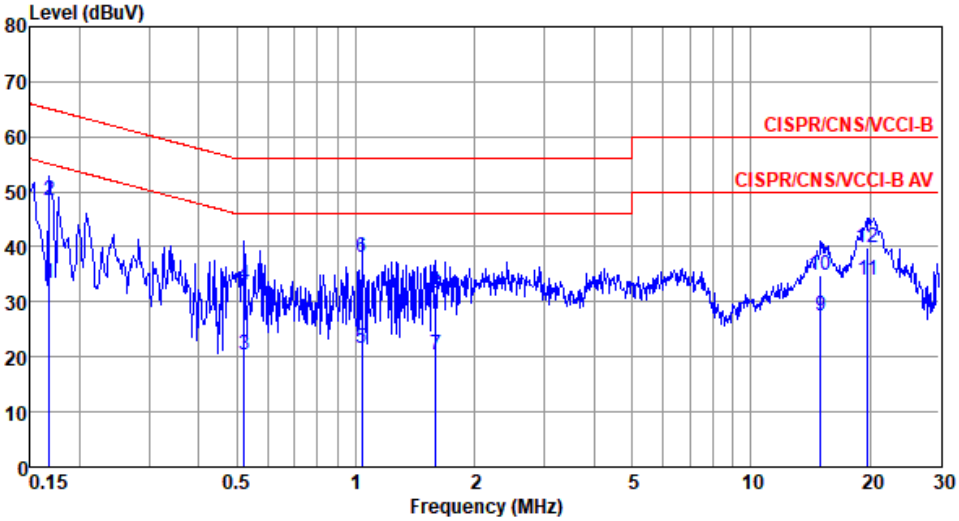


Note: 1. Support units were connected to second LISN.

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

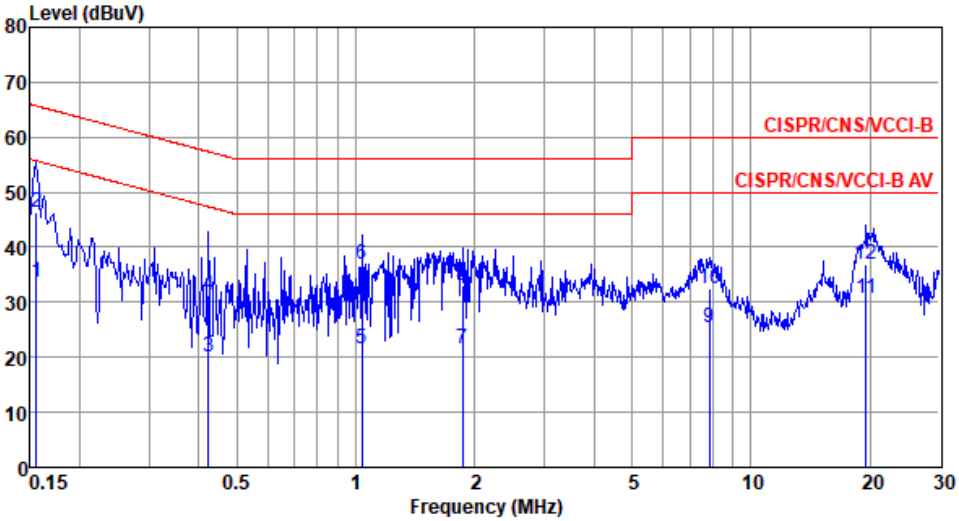
Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.168	33.43	55.08	-21.65	23.60	9.61	0.05	Average
2	0.168	48.48	65.08	-16.60	38.65	9.61	0.05	QP
3	0.521	20.25	46.00	-25.75	10.29	9.60	0.09	Average
4	0.521	33.20	56.00	-22.80	23.24	9.60	0.09	QP
5	1.037	21.53	46.00	-24.47	11.48	9.61	0.12	Average
6	1.037	38.05	56.00	-17.95	28.00	9.61	0.12	QP
7	1.593	20.32	46.00	-25.68	10.21	9.62	0.16	Average
8	1.593	31.56	56.00	-24.44	21.45	9.62	0.16	QP
9	14.986	27.59	50.00	-22.41	16.78	9.73	0.60	Average
10	14.986	34.79	60.00	-25.21	23.98	9.73	0.60	QP
11@	19.740	33.94	50.00	-16.06	22.95	9.73	0.66	Average
12	19.740	39.81	60.00	-20.19	28.82	9.73	0.66	QP

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

Modulation	11g	Test Freq. (MHz)	2437
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.156	33.63	55.69	-22.06	23.88	9.58	0.05	Average
2	0.156	46.33	65.69	-19.36	36.58	9.58	0.05	QP
3	0.424	20.03	47.37	-27.34	10.21	9.57	0.08	Average
4	0.424	31.38	57.37	-25.99	21.56	9.57	0.08	QP
5	1.037	21.44	46.00	-24.56	11.54	9.58	0.12	Average
6@	1.037	36.98	56.00	-19.02	27.08	9.58	0.12	QP
7	1.858	21.58	46.00	-24.42	11.57	9.59	0.17	Average
8	1.858	33.09	56.00	-22.91	23.08	9.59	0.17	QP
9	7.852	25.48	50.00	-24.52	15.11	9.70	0.36	Average
10	7.852	32.60	60.00	-27.40	22.23	9.70	0.36	QP
11	19.532	30.62	50.00	-19.38	19.63	9.83	0.65	Average
12	19.532	36.87	60.00	-23.13	25.88	9.83	0.65	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

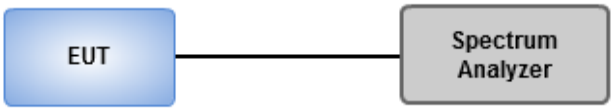
6dB Bandwidth

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	7.101M	11.288M	11M3G1D	6.087M	10.42M
802.11g_Nss1,(6Mbps)_2TX	16.377M	19.103M	19M1D1D	16.377M	16.643M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.333M	19.03M	19M0D1D	17.754M	18.886M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.681M	37.627M	37M6D1D	36.377M	37.482M

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;

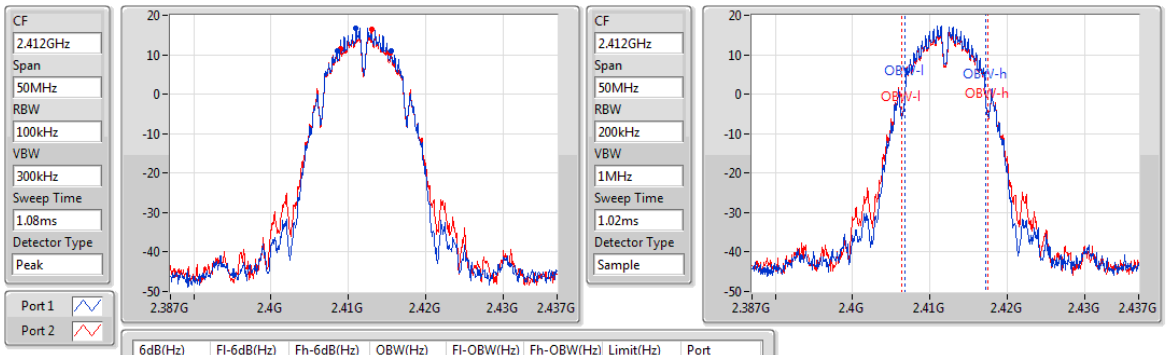
Result

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	7.029M	10.42M	6.522M	11.143M
2437MHz	Pass	500k	7.101M	10.42M	6.087M	11.143M
2462MHz	Pass	500k	6.522M	10.42M	6.522M	11.288M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.377M	16.643M	16.377M	16.643M
2437MHz	Pass	500k	16.377M	18.379M	16.377M	19.103M
2462MHz	Pass	500k	16.377M	16.643M	16.377M	16.643M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.754M	18.958M	18.116M	18.886M
2437MHz	Pass	500k	17.826M	19.03M	18.116M	19.03M
2462MHz	Pass	500k	17.754M	18.958M	18.333M	18.958M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	37.681M	37.482M	36.377M	37.627M
2437MHz	Pass	500k	37.681M	37.627M	37.391M	37.627M
2452MHz	Pass	500k	37.681M	37.627M	36.522M	37.627M

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

802.11b_Nss1,(1Mbps)_2TX **EBW**

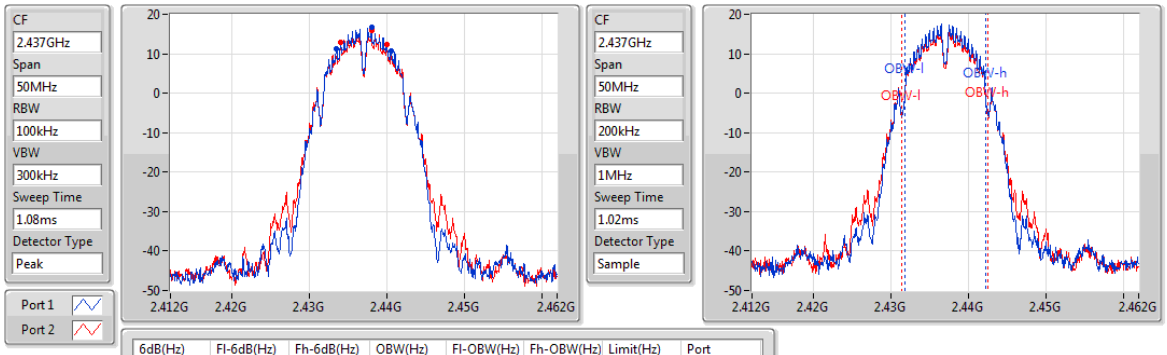
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.029M	2.408522G	2.415551G	10.42M	2.40679G	2.41721G	500k	1
6.522M	2.408957G	2.415478G	11.143M	2.406356G	2.417499G	500k	2

802.11b_Nss1,(1Mbps)_2TX **EBW**

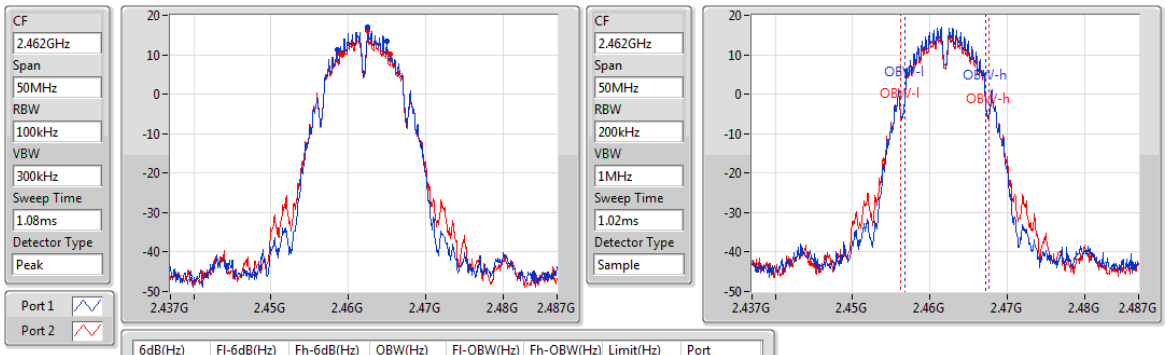
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.101M	2.433449G	2.440551G	10.42M	2.43179G	2.44221G	500k	1
6.087M	2.433957G	2.440043G	11.143M	2.431356G	2.442499G	500k	2

802.11b_Nss1,(1Mbps)_2TX **EBW**

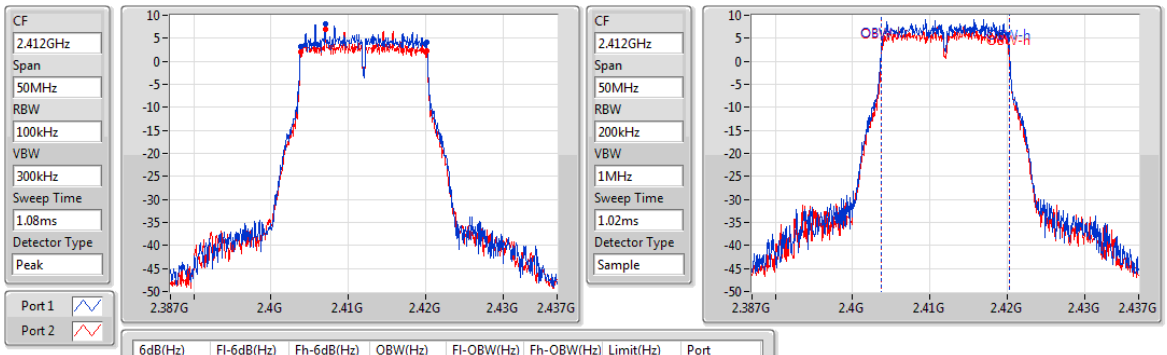
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
6.522M	2.458522G	2.465043G	10.42M	2.45679G	2.46721G	500k	1
6.522M	2.458957G	2.465478G	11.288M	2.456284G	2.467572G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

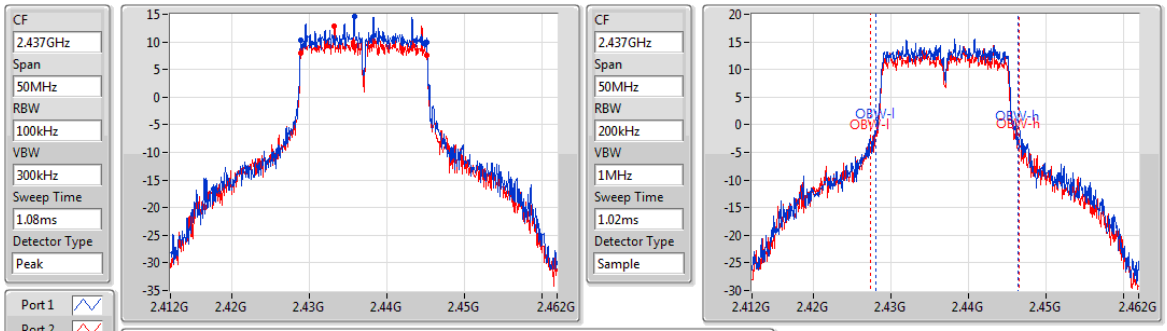
2412MHz



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	16.643M	2.403679G	2.420321G	500k	1
16.377M	2.403812G	2.420188G	16.643M	2.403679G	2.420321G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

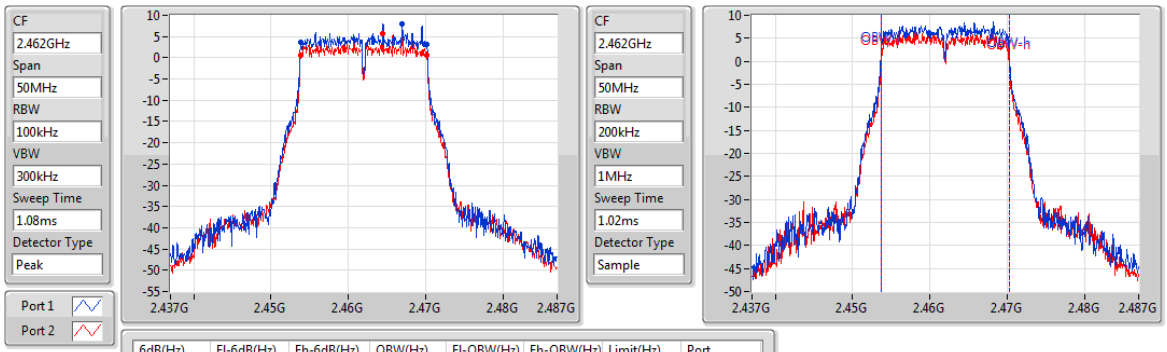
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.428812G	2.445188G	18.379M	2.427955G	2.446334G	500k	1
16.377M	2.428812G	2.445188G	19.103M	2.427376G	2.446479G	500k	2

802.11g_Nss1,(6Mbps)_2TX **EBW**

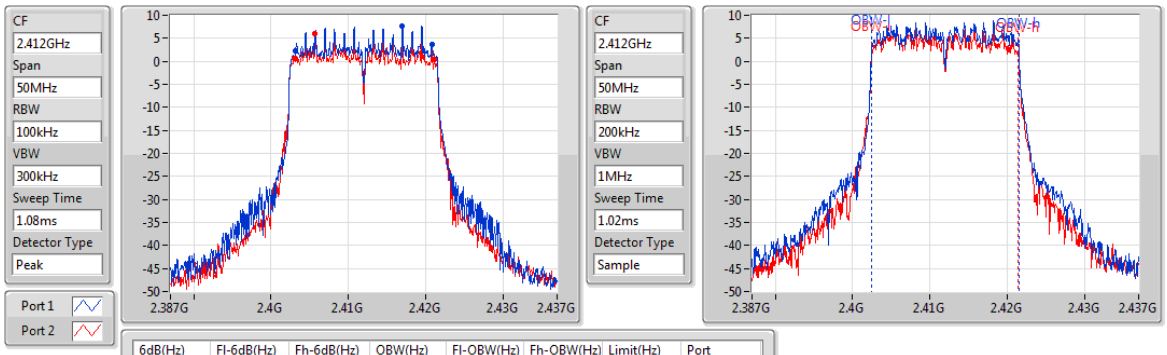
2462MHz



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	16.643M	2.453679G	2.470321G	500k	1
16.377M	2.453812G	2.470188G	16.643M	2.453679G	2.470321G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

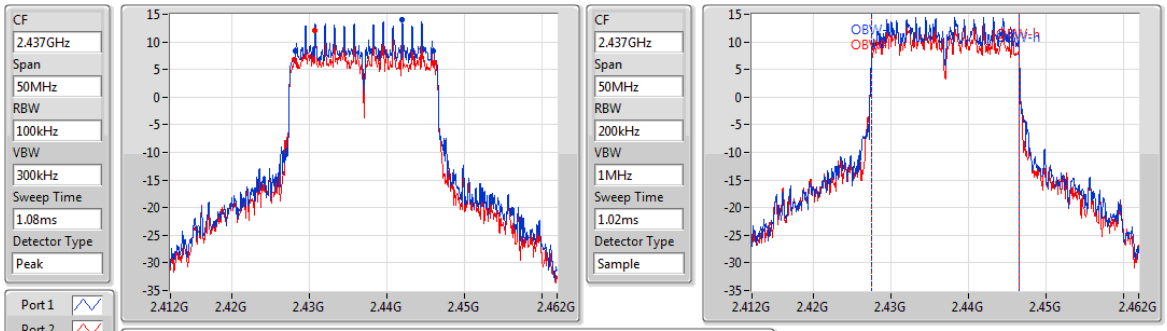
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.754M	2.403159G	2.420913G	18.958M	2.402521G	2.421479G	500k	1
18.116M	2.403014G	2.42113G	18.886M	2.402521G	2.421407G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

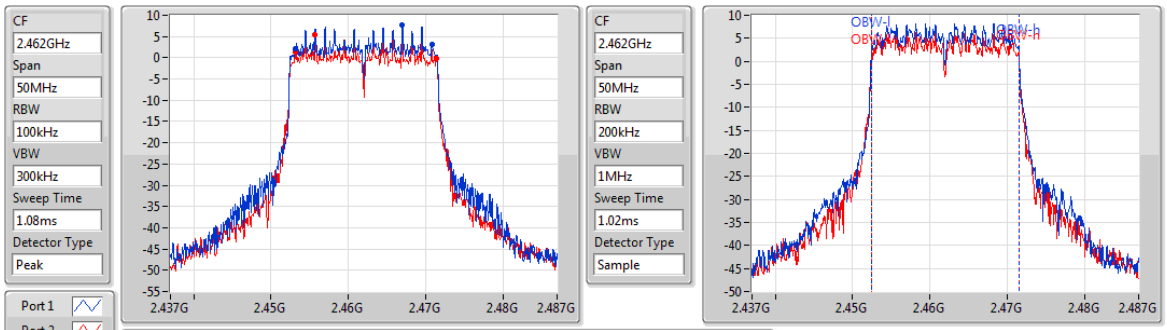
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.826M	2.428159G	2.445986G	19.03M	2.427521G	2.446551G	500k	1
18.116M	2.428014G	2.44613G	19.03M	2.427449G	2.446479G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

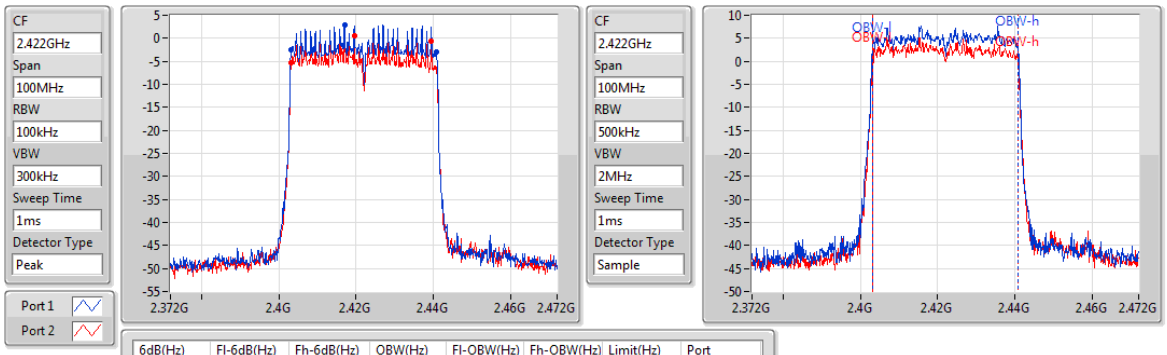
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.754M	2.453159G	2.470913G	18.958M	2.452521G	2.471479G	500k	1
18.333M	2.453087G	2.47142G	18.958M	2.452521G	2.471479G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

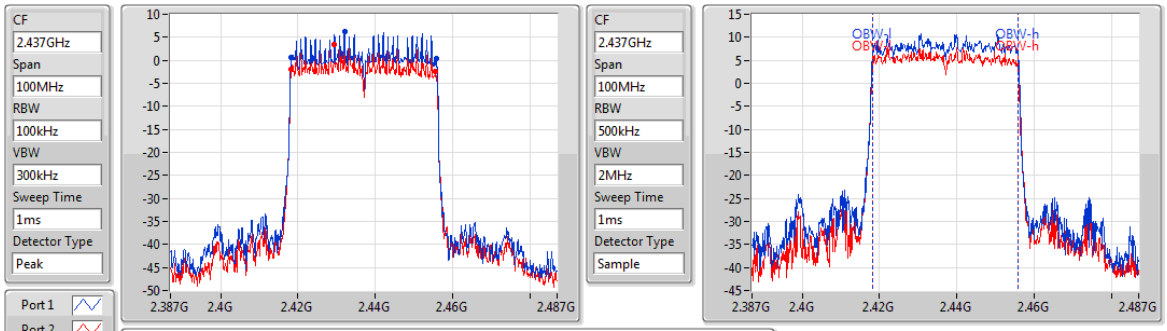
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.681M	2.403159G	2.440841G	37.482M	2.403187G	2.440669G	500k	1
36.377M	2.403159G	2.439536G	37.627M	2.403187G	2.440813G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

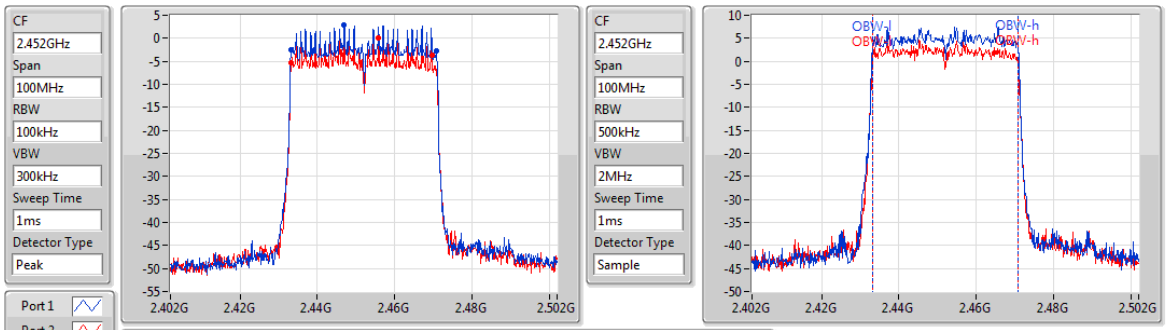
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.681M	2.418159G	2.455841G	37.627M	2.418187G	2.455813G	500k	1
37.391M	2.418159G	2.455551G	37.627M	2.418187G	2.455813G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

2452MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.681M	2.433159G	2.470841G	37.627M	2.433187G	2.470813G	500k	1
36.522M	2.433159G	2.469681G	37.627M	2.433187G	2.470813G	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 of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	28.17	0.65615
802.11g_Nss1,(6Mbps)_2TX	29.06	0.80538
802.11ax HEW20_Nss1,(MCS0)_2TX	28.09	0.64417
802.11ax HEW40_Nss1,(MCS0)_2TX	22.77	0.18923

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	0.00	24.92	25.38	28.17	30.00	28.17	36.00
2437MHz	Pass	0.00	24.78	25.11	27.96	30.00	27.96	36.00
2462MHz	Pass	0.00	24.45	24.96	27.72	30.00	27.72	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	0.00	20.04	19.72	22.89	30.00	22.89	36.00
2437MHz	Pass	0.00	26.08	26.02	29.06	30.00	29.06	36.00
2462MHz	Pass	0.00	19.58	19.25	22.43	30.00	22.43	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	0.00	19.35	19.19	22.28	30.00	22.28	36.00
2437MHz	Pass	0.00	25.14	25.01	28.09	30.00	28.09	36.00
2462MHz	Pass	0.00	18.96	18.66	21.82	30.00	21.82	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	0.00	17.02	16.15	19.62	30.00	19.62	36.00
2437MHz	Pass	0.00	20.26	19.19	22.77	30.00	22.77	36.00
2452MHz	Pass	0.00	16.82	15.9	19.39	30.00	19.39	36.00

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

Beamforming mode

Summary of Conducted (Average) Output Power

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
ax20,bf_Nss1,(MCS0)_2TX	28.06	0.63973
ax40.bf_Nss1,(MCS0)_2TX	22.53	0.17906

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
ax20,bf_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.01	19.32	19.15	22.25	30.00	25.26	36.00
2437MHz	Pass	3.01	25.11	24.98	28.06	30.00	31.07	36.00
2462MHz	Pass	3.01	18.64	18.38	21.52	30.00	24.53	36.00
ax40.bf_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.01	16.94	16.02	19.51	30.00	22.52	36.00
2437MHz	Pass	3.01	19.96	19.02	22.53	30.00	25.54	36.00
2452MHz	Pass	3.01	16.81	15.79	19.34	30.00	22.35	36.00

DG = Directional Gain = 0 dBi + 10*log(2/1)= 3.01 dBi;
Port X = Port X output power

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

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

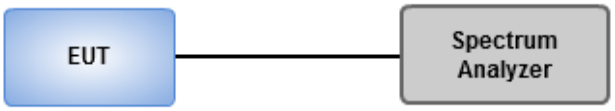
2 Set the sweep time to: ≥ 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).

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	6.51
802.11g_Nss1,(6Mbps)_2TX	3.62
802.11ax HEW20_Nss1,(MCS0)_2TX	3.55
802.11ax HEW40_Nss1,(MCS0)_2TX	-1.80

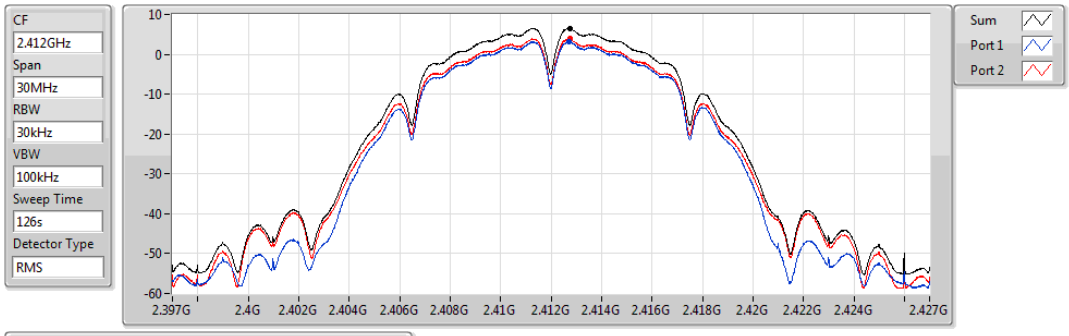
Result

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	3.01	3.15	3.94	6.51	8.00
2437MHz	Pass	3.01	3.18	2.43	5.80	8.00
2462MHz	Pass	3.01	2.92	1.98	5.48	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-4.70	-6.26	-2.43	8.00
2437MHz	Pass	3.01	1.23	-0.12	3.62	8.00
2462MHz	Pass	3.01	-5.10	-7.14	-2.99	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-4.97	-5.60	-2.32	8.00
2437MHz	Pass	3.01	1.07	0.26	3.55	8.00
2462MHz	Pass	3.01	-5.08	-6.20	-2.59	8.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.01	-6.50	-9.89	-4.86	8.00
2437MHz	Pass	3.01	-3.48	-6.75	-1.80	8.00
2452MHz	Pass	3.01	-6.49	-10.19	-4.95	8.00

DG = Directional Gain = 0 dBi + 10*log(2/1)= 3.01 dBi;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11b_Nss1,(1Mbps)_2TX **PSD**

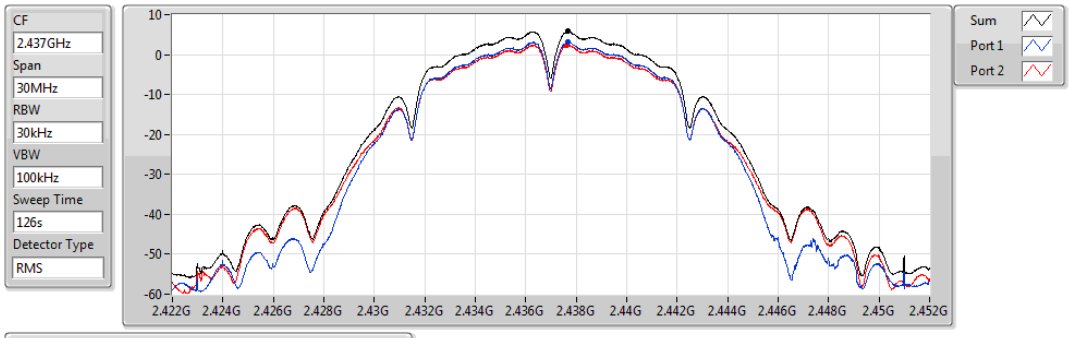
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.51	6.51	3.15	3.94

802.11b_Nss1,(1Mbps)_2TX **PSD**

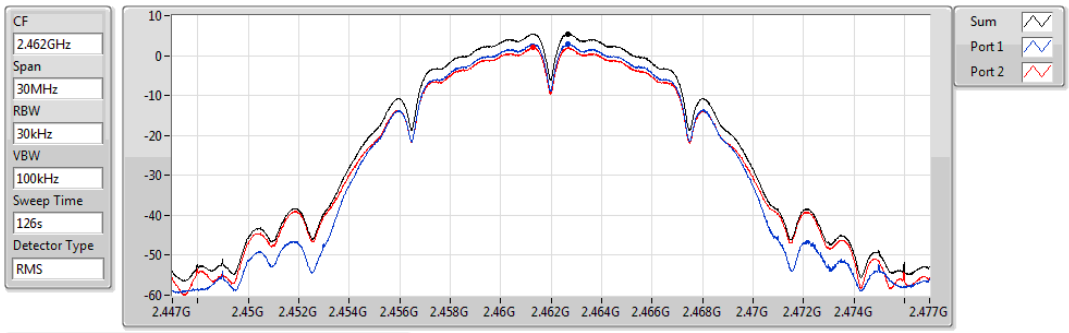
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.80	5.80	3.18	2.43

802.11b_Nss1,(1Mbps)_2TX **PSD**

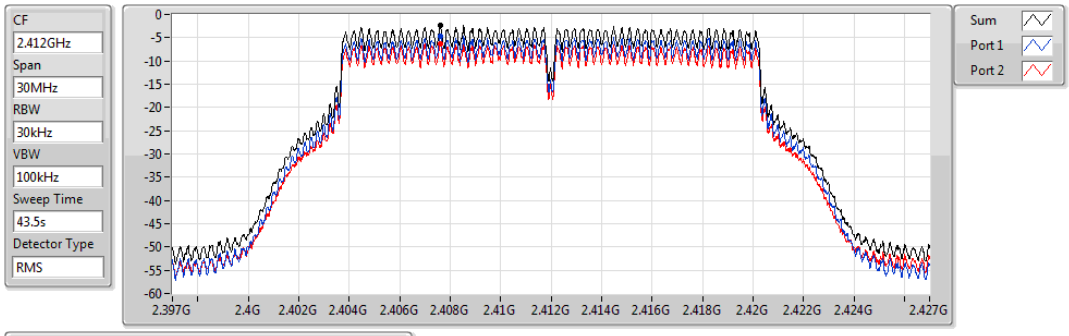
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.48	5.48	2.92	1.98

802.11g_Nss1,(6Mbps)_2TX **PSD**

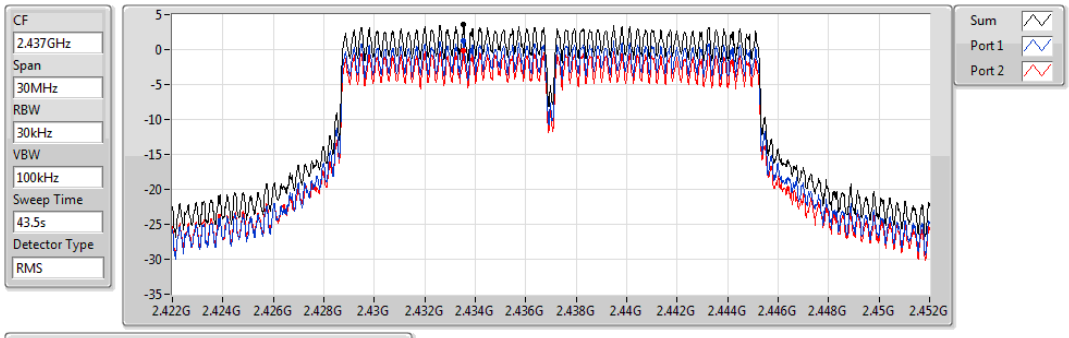
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.43	-2.43	-4.70	-6.26

802.11g_Nss1,(6Mbps)_2TX **PSD**

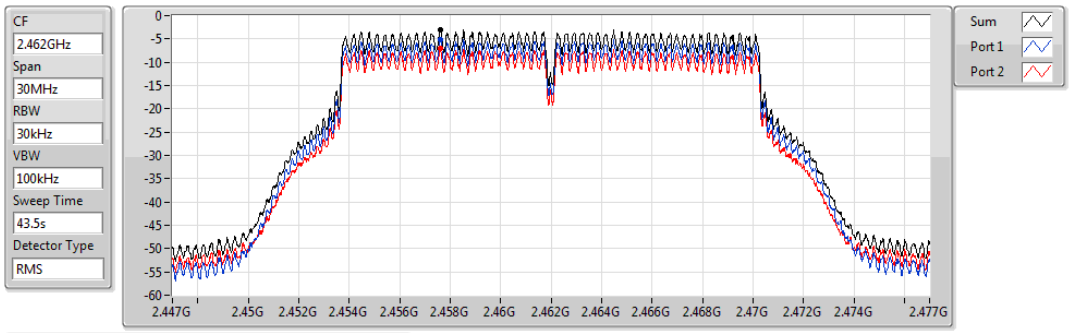
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.62	3.62	1.23	-0.12

802.11g_Nss1,(6Mbps)_2TX **PSD**

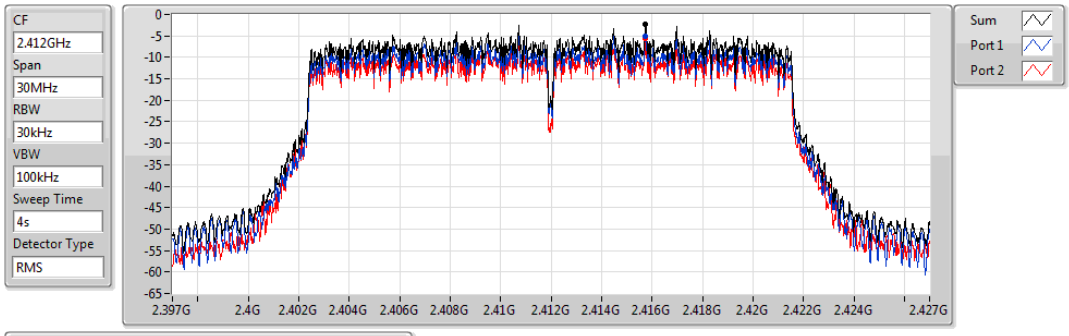
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.99	-2.99	-5.10	-7.14

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

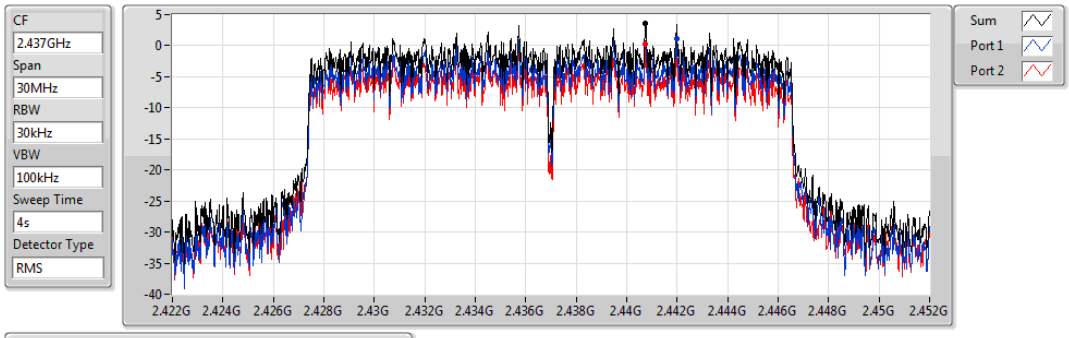
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.32	-2.32	-4.97	-5.60

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

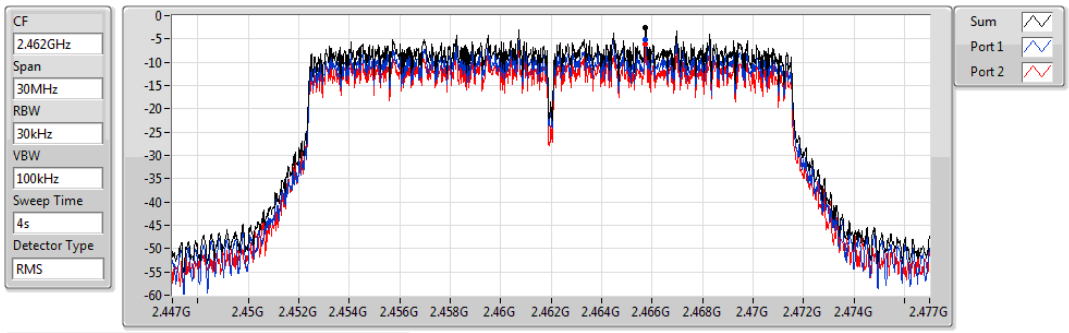
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.55	3.55	1.07	0.26

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

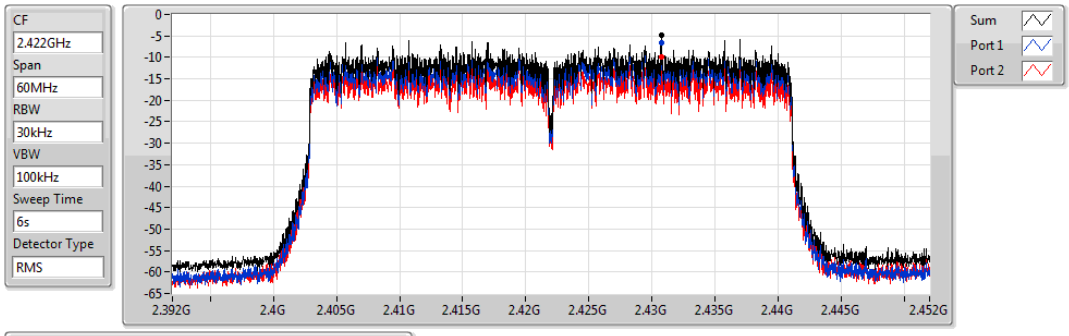
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.59	-2.59	-5.08	-6.20

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

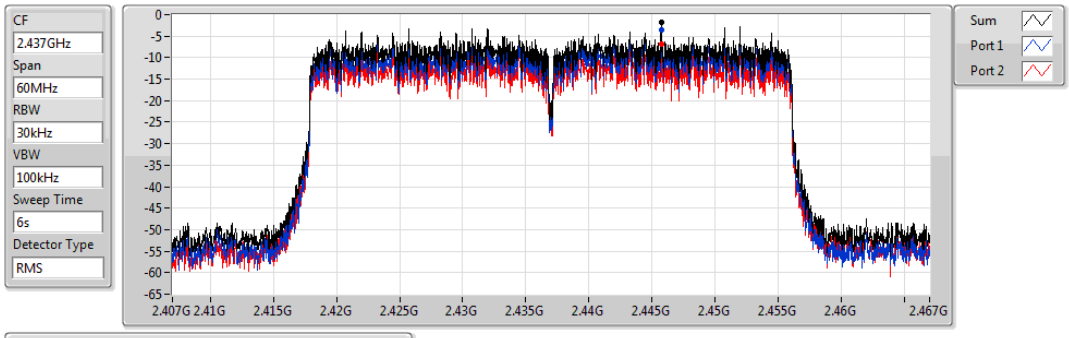
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.86	-4.86	-6.50	-9.89

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

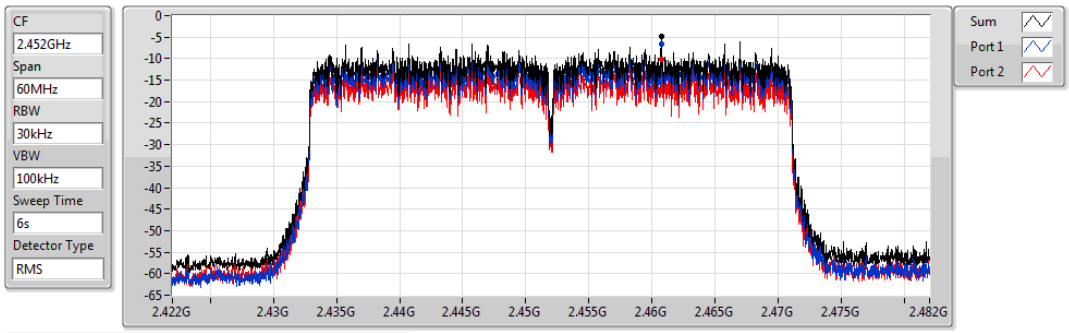
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.80	-1.80	-3.48	-6.75

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.95	-4.95	-6.49	-10.19

Beamforming mode

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
ax20,bf_Nss1,(MCS0)_2TX	0.71
ax40.bf_Nss1,(MCS0)_2TX	-6.96

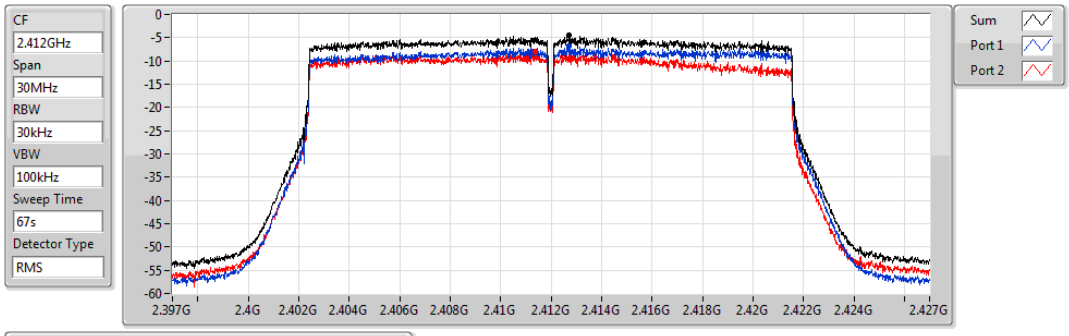
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
ax20,bf_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-6.75	-7.97	-4.45	8.00
2437MHz	Pass	3.01	-1.15	-2.50	0.71	8.00
2462MHz	Pass	3.01	-7.87	-9.23	-5.68	8.00
ax40.bf_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.01	-11.85	-13.51	-10.19	8.00
2437MHz	Pass	3.01	-8.40	-11.08	-6.96	8.00
2452MHz	Pass	3.01	-10.84	-11.80	-9.34	8.00

DG = Directional Gain = 0 dBi + 10*log(2/1)= 3.01 dBi;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

ax20,bf_Nss1,(MCS0)_2TX **PSD**

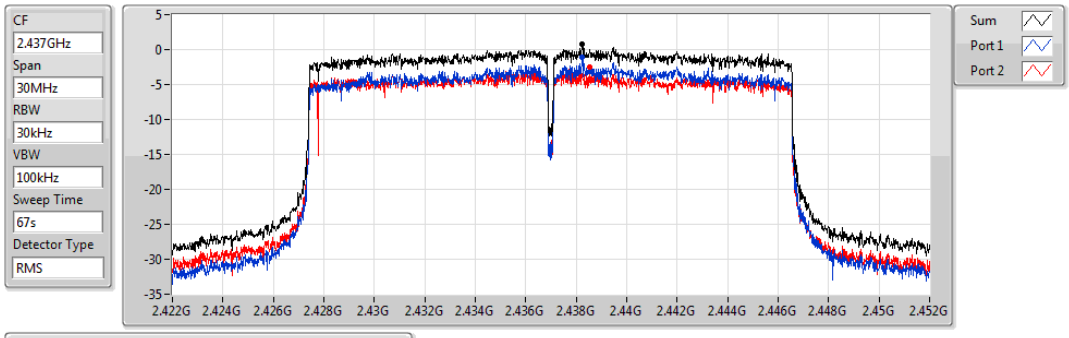
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.45	-4.45	-6.75	-7.97

ax20,bf_Nss1,(MCS0)_2TX **PSD**

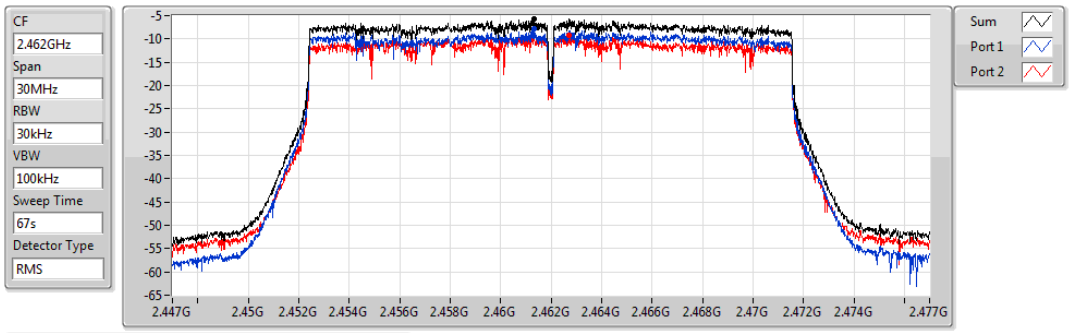
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.71	0.71	-1.15	-2.50

ax20,bf_Nss1,(MCS0)_2TX **PSD**

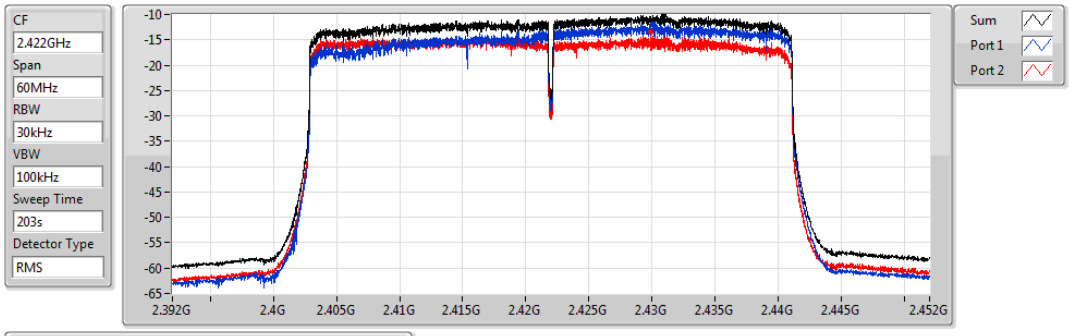
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.68	-5.68	-7.87	-9.23

ax40.bf_Nss1,(MCS0)_2TX **PSD**

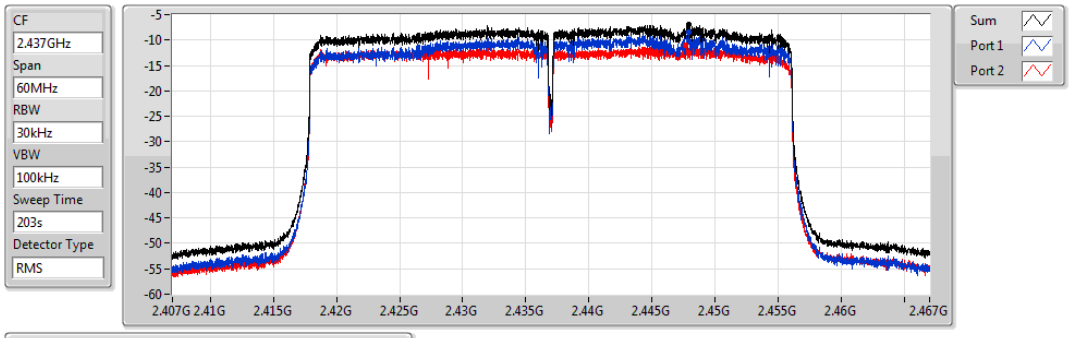
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.19	-10.19	-11.85	-13.51

ax40.bf_Nss1,(MCS0)_2TX **PSD**

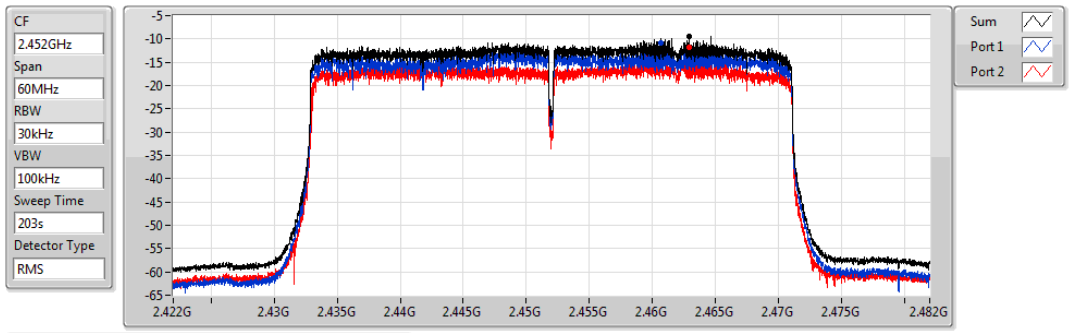
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.96	-6.96	-8.40	-11.08

ax40.bf_Nss1,(MCS0)_2TX **PSD**

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.34	-9.34	-10.84	-11.80

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

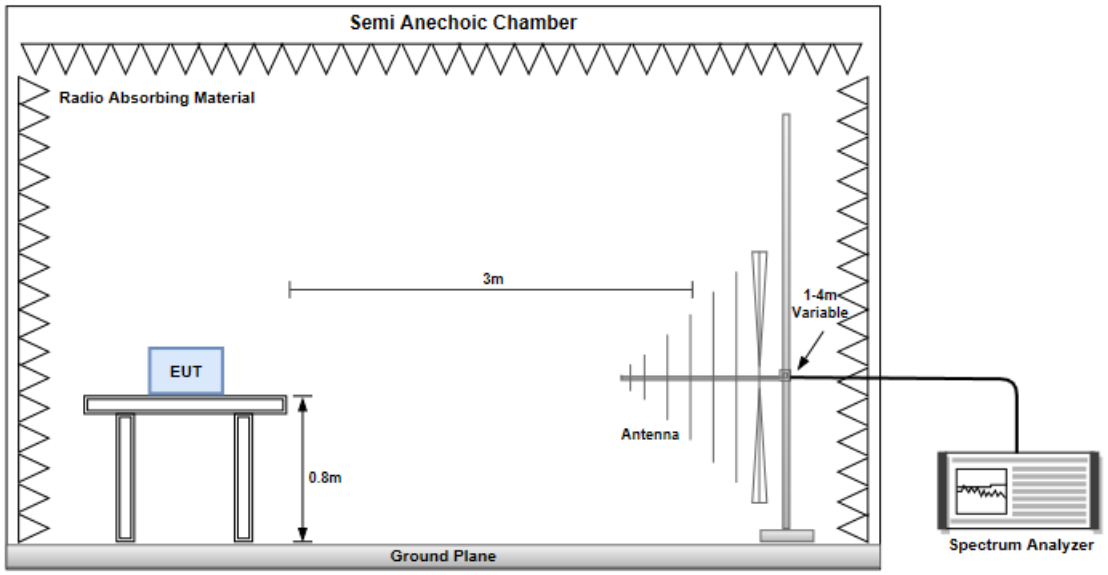
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

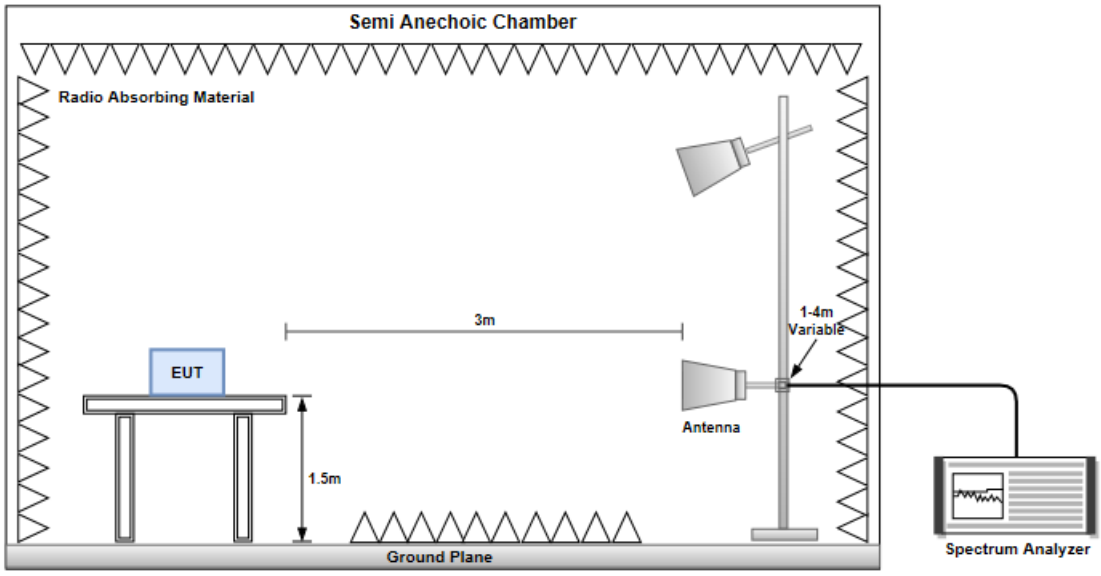
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

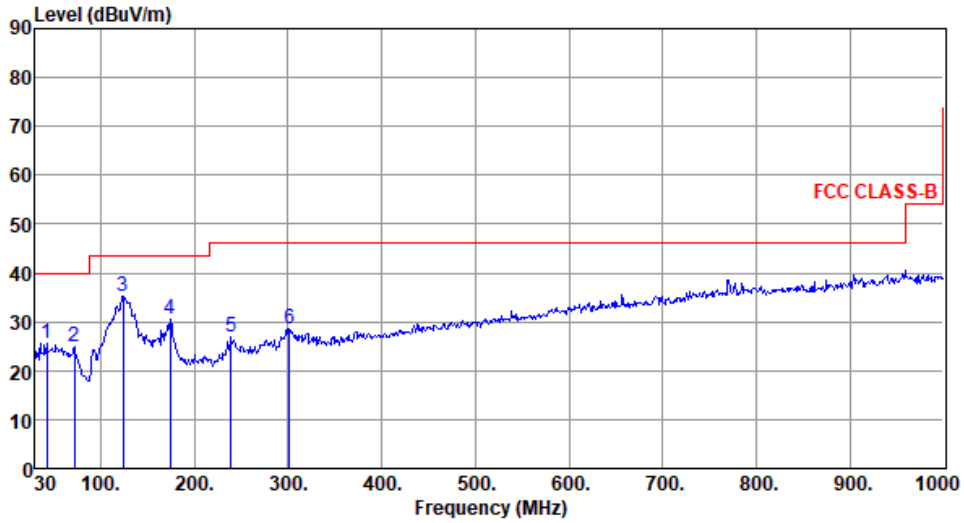


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

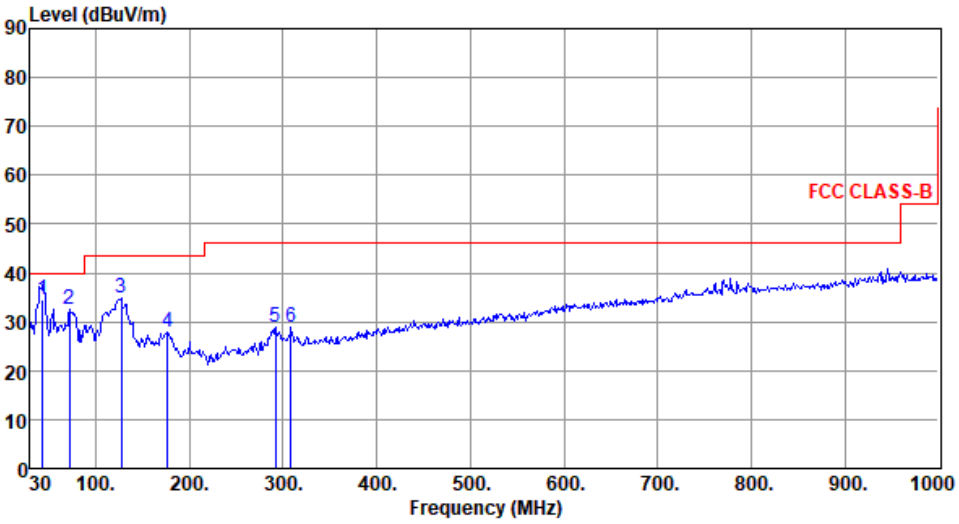
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.61	25.74	40.00	-14.26	34.00	-8.26	Peak	---	---
2	71.71	24.74	40.00	-15.26	35.55	-10.81	Peak	---	---
3	124.09	35.24	43.50	-8.26	45.51	-10.27	Peak	---	---
4	174.53	30.41	43.50	-13.09	39.69	-9.28	Peak	---	---
5	239.52	26.84	46.00	-19.16	37.09	-10.25	Peak	---	---
6	301.60	28.65	46.00	-17.35	36.68	-8.03	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	11g	Test Freq. (MHz)	2437
Polarization	Vertical		

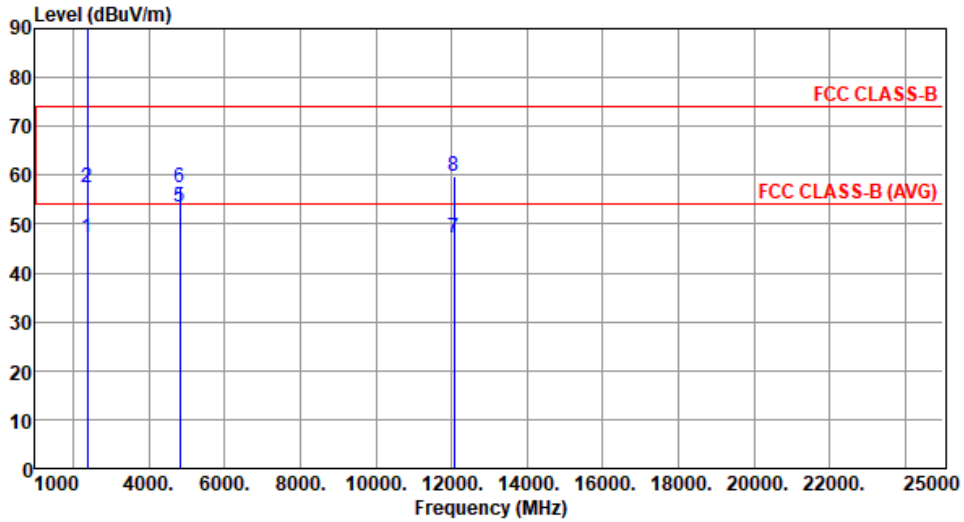


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	43.58	34.65	40.00	-5.35	42.87	-8.22	QP	103	186
2	71.71	32.65	40.00	-7.35	43.46	-10.81	Peak	---	---
3	127.00	34.84	43.50	-8.66	44.72	-9.88	Peak	---	---
4	176.47	27.83	43.50	-15.67	37.30	-9.47	Peak	---	---
5	291.90	28.85	46.00	-17.15	37.13	-8.28	Peak	---	---
6	308.39	28.83	46.00	-17.17	36.61	-7.78	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

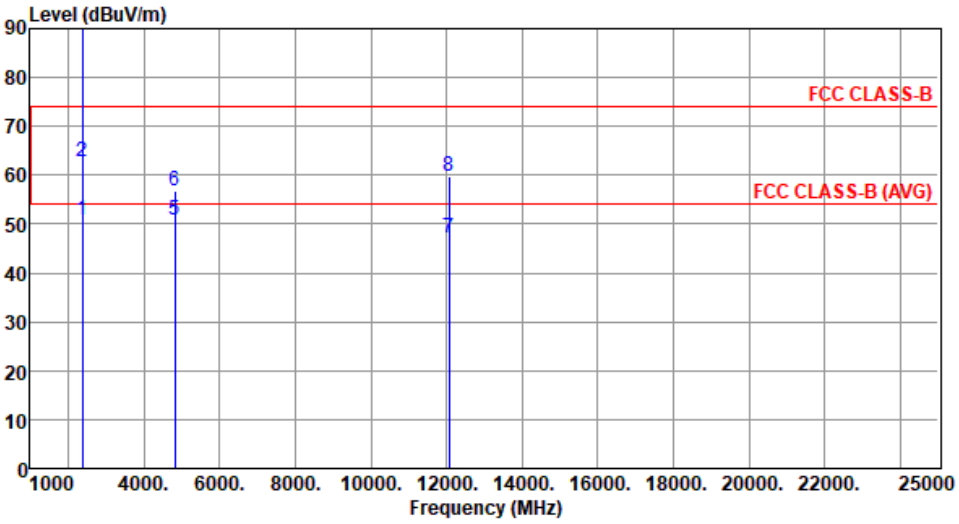
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	47.01	54.00	-6.99	49.81	-2.80	Average	190	201
2		2390.00	57.34	74.00	-16.66	60.14	-2.80	Peak	190	201
3	*	2412.00	112.95			115.85	-2.90	Average	190	201
4	*	2412.00	115.34			118.24	-2.90	Peak	190	201
5		4824.00	53.50	54.00	-0.50	49.90	3.60	Average	131	318
6		4824.00	57.55	74.00	-16.45	53.95	3.60	Peak	131	318
7		12060.00	47.16	54.00	-6.84	33.31	13.85	Average	100	50
8		12060.00	59.86	74.00	-14.14	46.01	13.85	Peak	100	50

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:"*" is Peak / Average value of fundamental frequency

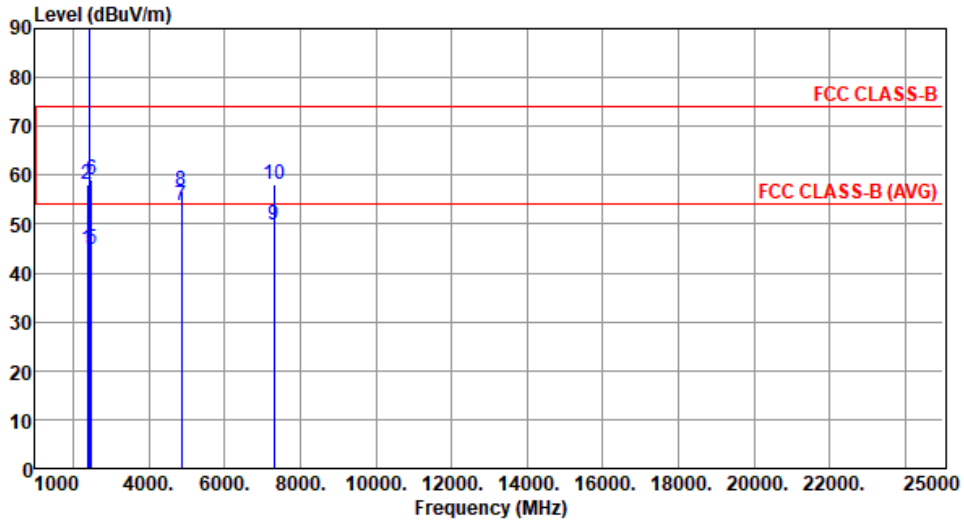
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		



		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	50.68	54.00	-3.32	53.48	-2.80	Average	100	254
2		2390.00	62.77	74.00	-11.23	65.57	-2.80	Peak	100	254
3	*	2412.00	115.69			118.59	-2.90	Average	100	254
4	*	2412.00	118.20			121.10	-2.90	Peak	100	254
5		4824.00	50.93	54.00	-3.07	47.33	3.60	Average	150	283
6		4824.00	56.67	74.00	-17.33	53.07	3.60	Peak	150	283
7		12060.00	47.18	54.00	-6.82	33.33	13.85	Average	100	20
8		12060.00	59.82	74.00	-14.18	45.97	13.85	Peak	100	20

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:"*" is Peak / Average value of fundamental frequency

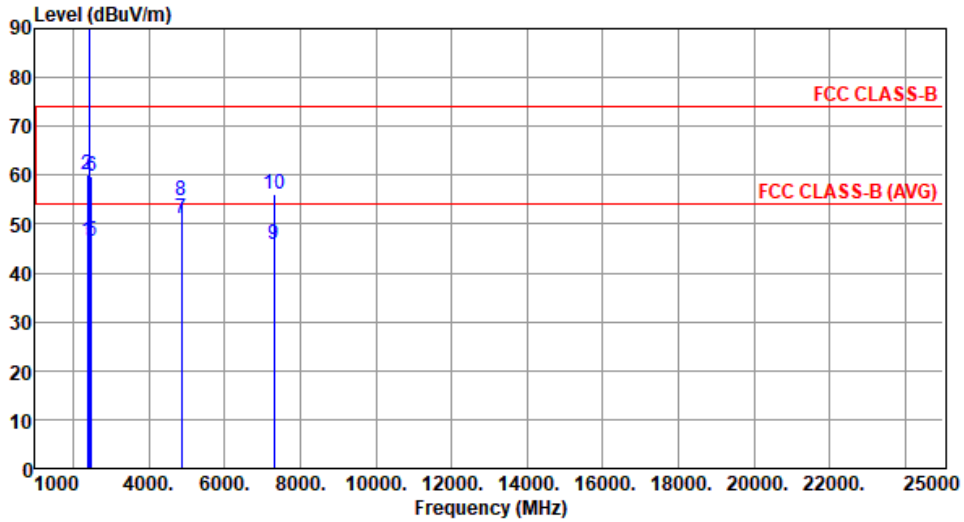
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	44.70	54.00	-9.30	47.50	-2.80	Average	251	220
2		2390.00	58.27	74.00	-15.73	61.07	-2.80	Peak	251	220
3	*	2437.00	112.80			115.81	-3.01	Average	251	220
4	*	2437.00	115.24			118.25	-3.01	Peak	251	220
5		2483.50	44.93	54.00	-9.07	47.96	-3.03	Average	251	220
6		2483.50	59.21	74.00	-14.79	62.24	-3.03	Peak	251	220
7		4874.00	53.79	54.00	-0.21	50.15	3.64	Average	100	307
8		4874.00	56.90	74.00	-17.10	53.26	3.64	Peak	100	307
9		7311.00	49.89	54.00	-4.11	40.62	9.27	Average	270	242
10		7311.00	58.00	74.00	-16.00	48.73	9.27	Peak	270	242

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:"*" is Peak / Average value of fundamental frequency

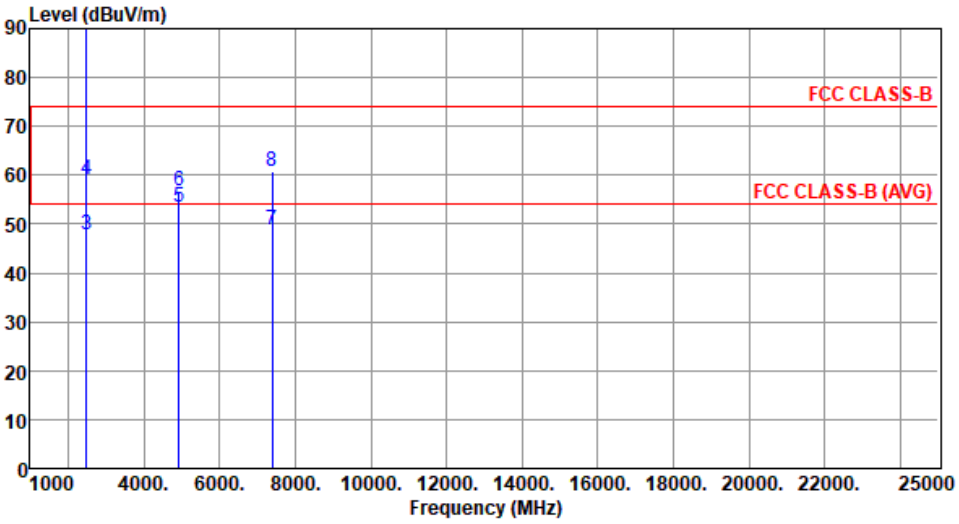
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	46.41	54.00	-7.59	49.21	-2.80	Average	136	271
2		2390.00	60.24	74.00	-13.76	63.04	-2.80	Peak	136	271
3	*	2437.00	115.61			118.62	-3.01	Average	136	271
4	*	2437.00	118.14			121.15	-3.01	Peak	136	271
5		2483.50	46.46	54.00	-7.54	49.49	-3.03	Average	136	271
6		2483.50	59.67	74.00	-14.33	62.70	-3.03	Peak	136	271
7		4874.00	51.11	54.00	-2.89	47.47	3.64	Average	100	59
8		4874.00	54.73	74.00	-19.27	51.09	3.64	Peak	100	59
9		7311.00	45.78	54.00	-8.22	36.51	9.27	Average	155	287
10		7311.00	56.17	74.00	-17.83	46.90	9.27	Peak	155	287

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:"*" is Peak / Average value of fundamental frequency

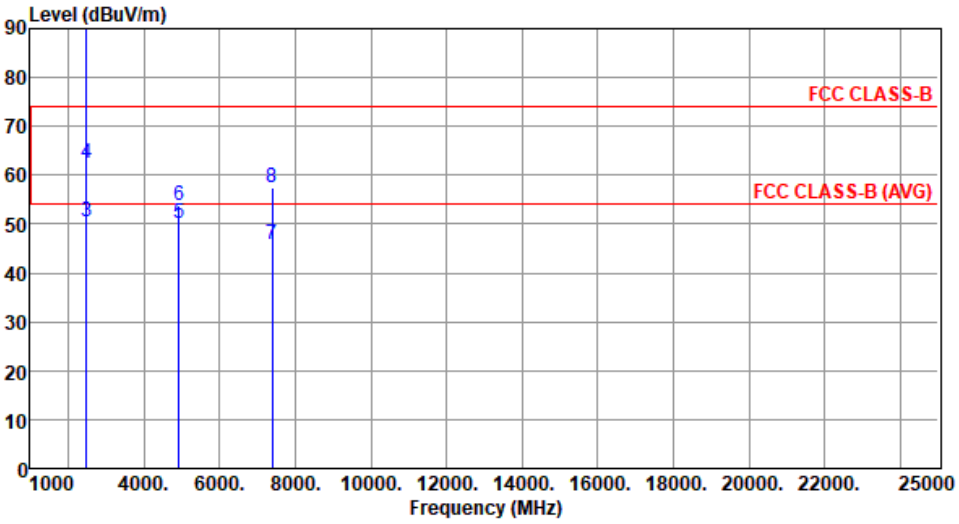
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	112.53			115.59	-3.06	Average	234	197
2	*	2462.00	115.03			118.09	-3.06	Peak	234	197
3		2483.50	47.82	54.00	-6.18	50.85	-3.03	Average	234	197
4		2483.50	59.05	74.00	-14.95	62.08	-3.03	Peak	234	197
5		4924.00	53.52	54.00	-0.48	49.83	3.69	Average	100	305
6		4924.00	56.84	74.00	-17.16	53.15	3.69	Peak	100	305
7		7386.00	48.83	54.00	-5.17	39.76	9.07	Average	279	307
8		7386.00	60.82	74.00	-13.18	51.75	9.07	Peak	279	307

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:"*" is Peak / Average value of fundamental frequency

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

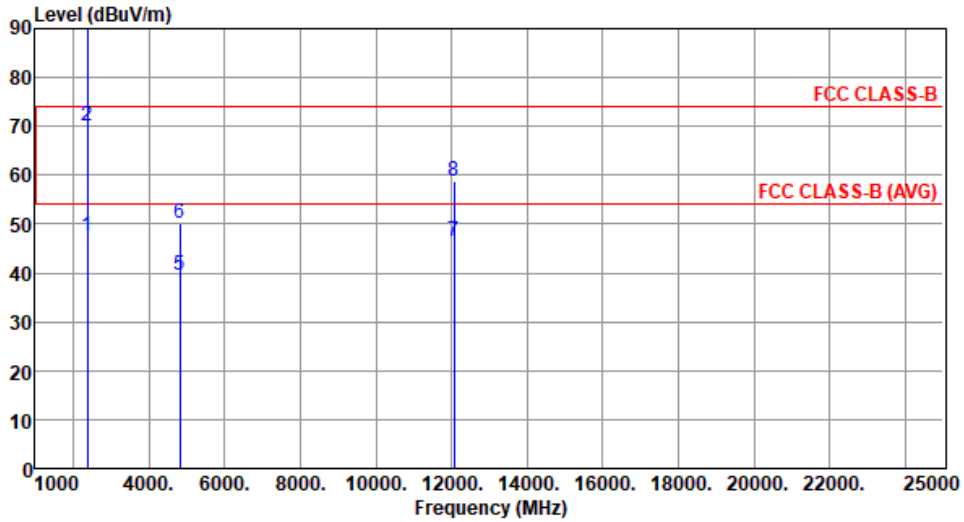


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	115.29			118.35	-3.06	Average	135	257
2	*	2462.00	117.83			120.89	-3.06	Peak	135	257
3		2483.50	50.63	54.00	-3.37	53.66	-3.03	Average	135	257
4		2483.50	62.47	74.00	-11.53	65.50	-3.03	Peak	135	257
5		4924.00	50.11	54.00	-3.89	46.42	3.69	Average	100	59
6		4924.00	53.91	74.00	-20.09	50.22	3.69	Peak	100	59
7		7386.00	45.96	54.00	-8.04	36.89	9.07	Average	100	30
8		7386.00	57.59	74.00	-16.41	48.52	9.07	Peak	100	30

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:"*" is Peak / Average value of fundamental frequency

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

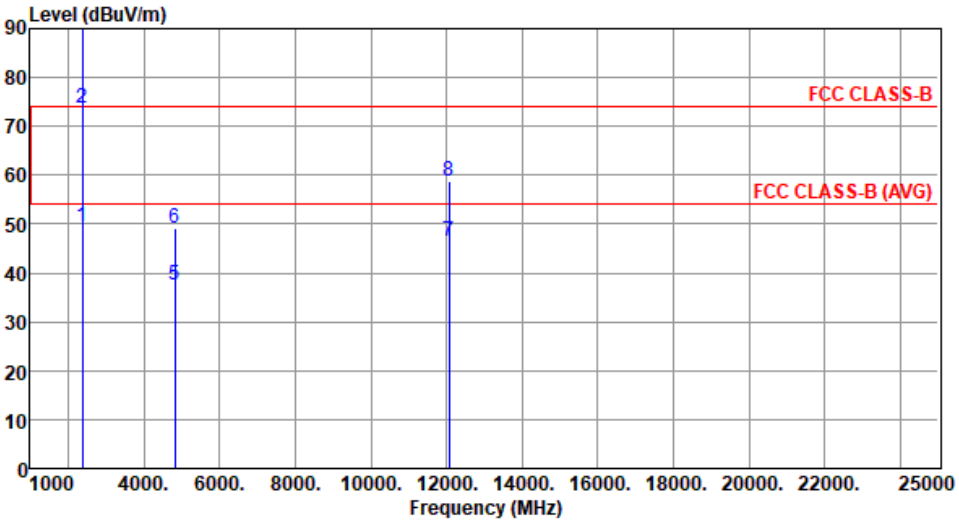
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	47.65	54.00	-6.35	50.45	-2.80	Average	222	206
2		2390.00	69.98	74.00	-4.02	72.78	-2.80	Peak	222	206
3	*	2412.00	102.51			105.41	-2.90	Average	222	206
4	*	2412.00	112.08			114.98	-2.90	Peak	222	206
5		4824.00	39.67	54.00	-14.33	36.07	3.60	Average	100	306
6		4824.00	50.19	74.00	-23.81	46.59	3.60	Peak	100	306
7		12060.00	46.46	54.00	-7.54	32.61	13.85	Average	100	30
8		12060.00	58.94	74.00	-15.06	45.09	13.85	Peak	100	30

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:"*" is Peak / Average value of fundamental frequency

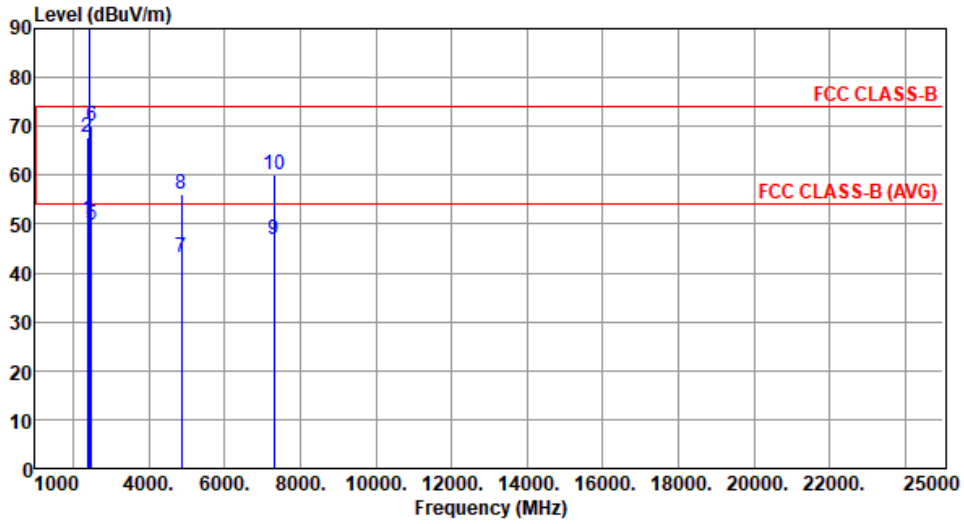
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		



		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	49.64	54.00	-4.36	52.44	-2.80	Average	100	255
2		2390.00	73.59	74.00	-0.41	76.39	-2.80	Peak	100	255
3	*	2412.00	104.87			107.77	-2.90	Average	100	255
4	*	2412.00	114.46			117.36	-2.90	Peak	100	255
5		4824.00	37.61	54.00	-16.39	34.01	3.60	Average	100	12
6		4824.00	49.08	74.00	-24.92	45.48	3.60	Peak	100	12
7		12060.00	46.50	54.00	-7.50	32.65	13.85	Average	100	20
8		12060.00	58.93	74.00	-15.07	45.08	13.85	Peak	100	20

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:"*" is Peak / Average value of fundamental frequency

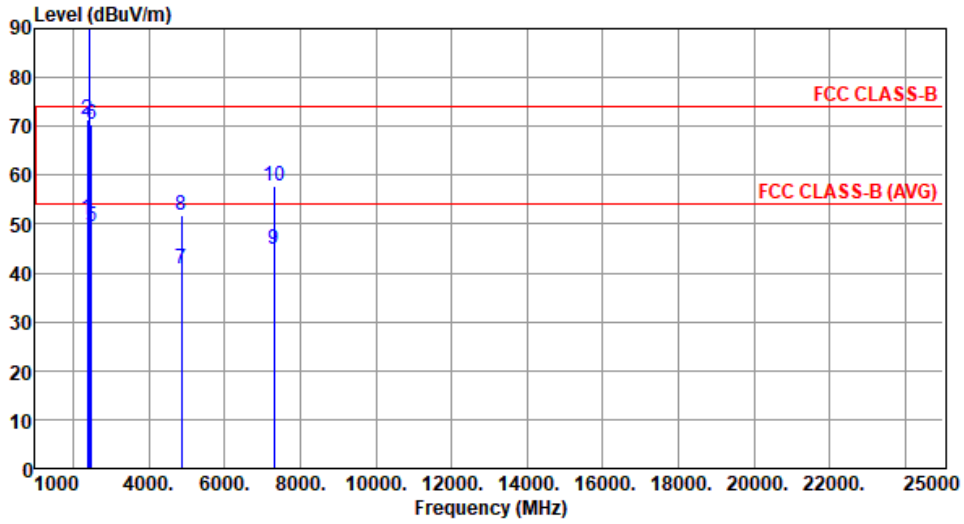
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	50.81	54.00	-3.19	53.61	-2.80	Average	266	214
2		2390.00	67.75	74.00	-6.25	70.55	-2.80	Peak	266	214
3	*	2437.00	108.32			111.33	-3.01	Average	266	214
4	*	2437.00	117.87			120.88	-3.01	Peak	266	214
5		2483.50	49.73	54.00	-4.27	52.76	-3.03	Average	266	214
6		2483.50	70.06	74.00	-3.94	73.09	-3.03	Peak	266	214
7		4874.00	43.06	54.00	-10.94	39.42	3.64	Average	100	296
8		4874.00	56.16	74.00	-17.84	52.52	3.64	Peak	100	296
9		7311.00	46.69	54.00	-7.31	37.42	9.27	Average	166	317
10		7311.00	60.23	74.00	-13.77	50.96	9.27	Peak	166	317

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:"*" is Peak / Average value of fundamental frequency

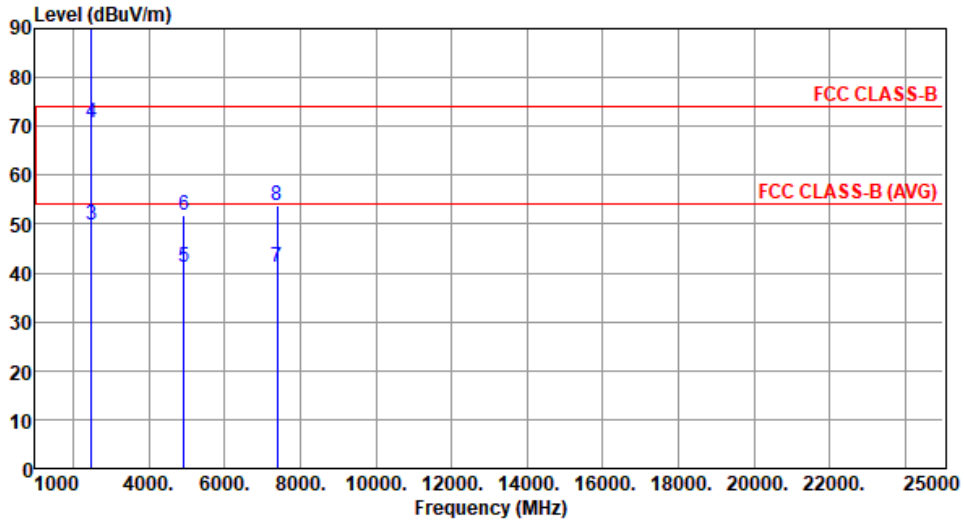
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	51.18	54.00	-2.82	53.98	-2.80	Average	100	263
2		2390.00	71.48	74.00	-2.52	74.28	-2.80	Peak	100	263
3	*	2437.00	110.46			113.47	-3.01	Average	100	263
4	*	2437.00	121.02			124.03	-3.01	Peak	100	263
5		2483.50	49.63	54.00	-4.37	52.66	-3.03	Average	100	263
6		2483.50	70.30	74.00	-3.70	73.33	-3.03	Peak	100	263
7		4874.00	40.88	54.00	-13.12	37.24	3.64	Average	100	6
8		4874.00	51.66	74.00	-22.34	48.02	3.64	Peak	100	6
9		7311.00	44.90	54.00	-9.10	35.63	9.27	Average	161	292
10		7311.00	57.84	74.00	-16.16	48.57	9.27	Peak	161	292

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:"*" is Peak / Average value of fundamental frequency

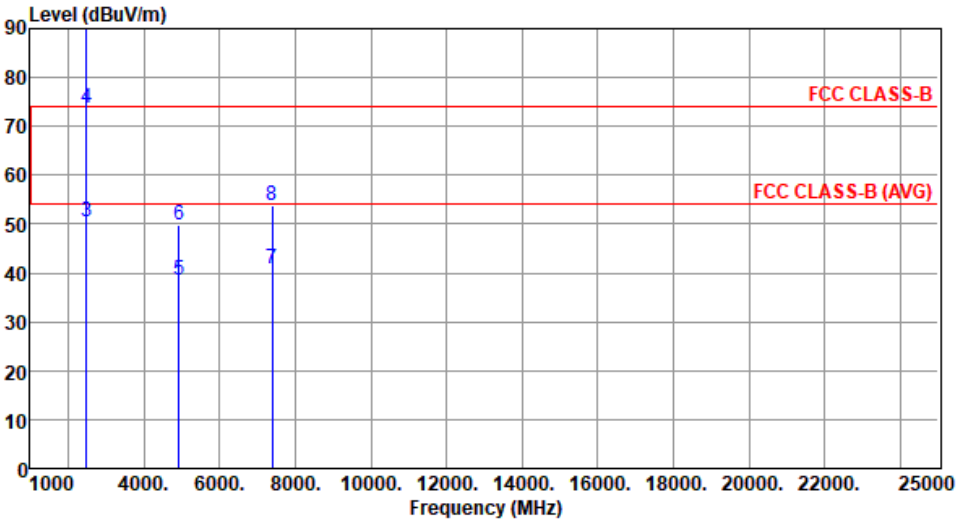
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	104.07			107.13	-3.06	Average	238	214
2	*	2462.00	113.56			116.62	-3.06	Peak	238	214
3		2483.50	49.69	54.00	-4.31	52.72	-3.03	Average	238	214
4		2483.50	70.86	74.00	-3.14	73.89	-3.03	Peak	238	214
5		4924.00	41.32	54.00	-12.68	37.63	3.69	Average	100	304
6		4924.00	51.74	74.00	-22.26	48.05	3.69	Peak	100	304
7		7386.00	41.13	54.00	-12.87	32.06	9.07	Average	100	30
8		7386.00	53.89	74.00	-20.11	44.82	9.07	Peak	100	30

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:"*" is Peak / Average value of fundamental frequency

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

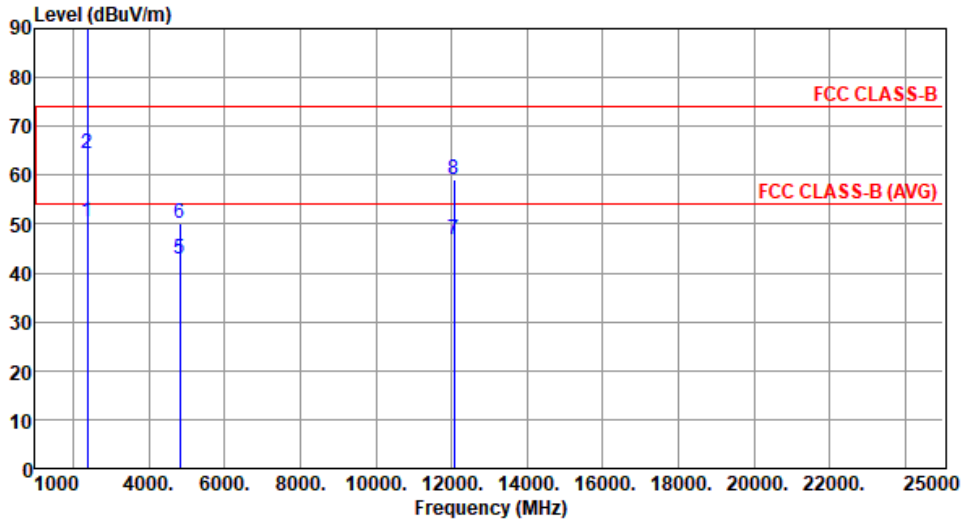


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	105.50			108.56	-3.06	Average	100	240
2	*	2462.00	115.07			118.13	-3.06	Peak	100	240
3		2483.50	50.56	54.00	-3.44	53.59	-3.03	Average	100	240
4		2483.50	73.62	74.00	-0.38	76.65	-3.03	Peak	100	240
5		4924.00	38.53	54.00	-15.47	34.84	3.69	Average	100	15
6		4924.00	49.77	74.00	-24.23	46.08	3.69	Peak	100	15
7		7386.00	40.93	54.00	-13.07	31.86	9.07	Average	100	20
8		7386.00	53.84	74.00	-20.16	44.77	9.07	Peak	100	20

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:"*" is Peak / Average value of fundamental frequency

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE20

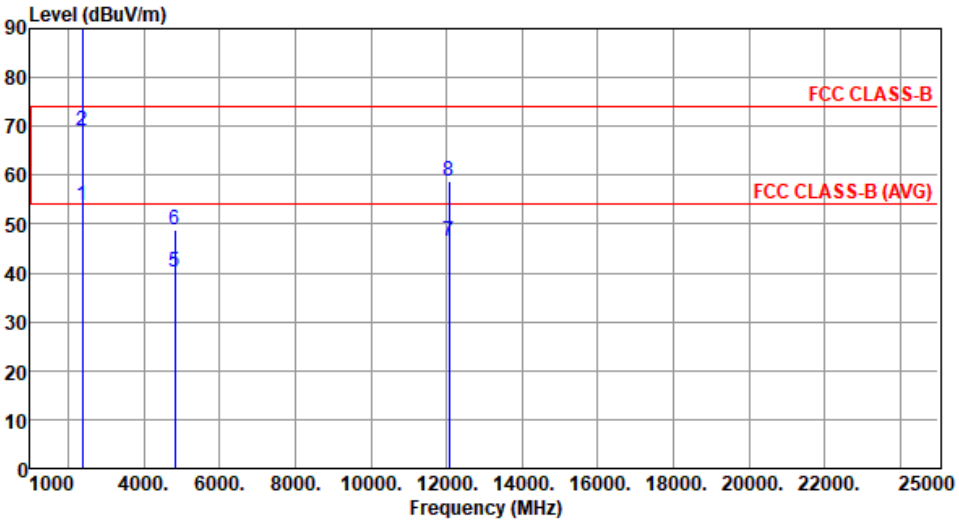
Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Horizontal		



		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	50.45	54.00	-3.55	53.25	-2.80	Average	186	203
2		2390.00	64.33	74.00	-9.67	67.13	-2.80	Peak	186	203
3	*	2412.00	102.68			105.58	-2.90	Average	186	203
4	*	2412.00	112.34			115.24	-2.90	Peak	186	203
5		4824.00	42.74	54.00	-11.26	39.14	3.60	Average	100	311
6		4824.00	50.09	74.00	-23.91	46.49	3.60	Peak	100	311
7		12060.00	46.76	54.00	-7.24	32.91	13.85	Average	100	315
8		12060.00	59.12	74.00	-14.88	45.27	13.85	Peak	100	315

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:"*" is Peak / Average value of fundamental frequency

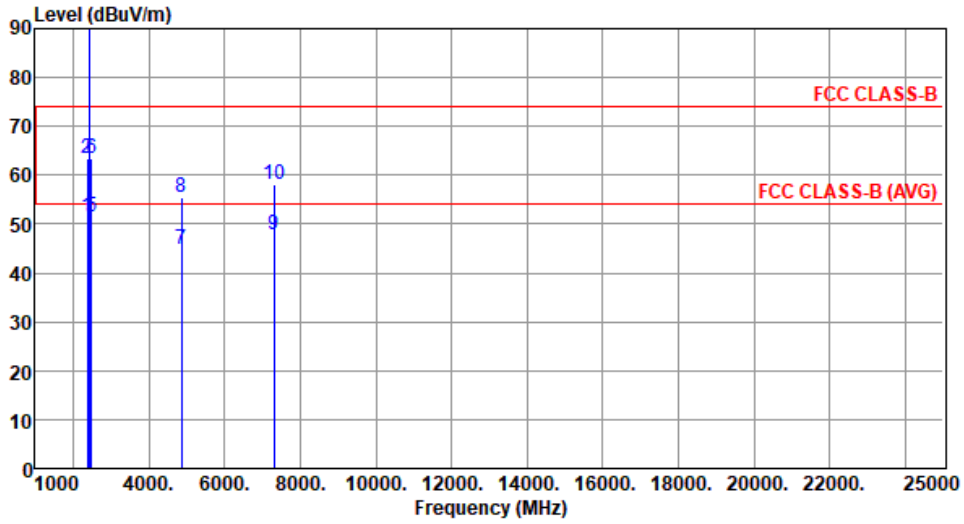
Modulation	ax HE20	**Test Freq. (MHz)**	2412
Polarization	Vertical		



		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	53.70	54.00	-0.30	56.50	-2.80	Average	100	238
2		2390.00	68.93	74.00	-5.07	71.73	-2.80	Peak	100	238
3	*	2412.00	104.46			107.36	-2.90	Average	100	238
4	*	2412.00	113.95			116.85	-2.90	Peak	100	238
5		4824.00	40.17	54.00	-13.83	36.57	3.60	Average	100	12
6		4824.00	48.85	74.00	-25.15	45.25	3.60	Peak	100	12
7		12060.00	46.36	54.00	-7.64	32.51	13.85	Average	100	20
8		12060.00	58.89	74.00	-15.11	45.04	13.85	Peak	100	20

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:"*" is Peak / Average value of fundamental frequency

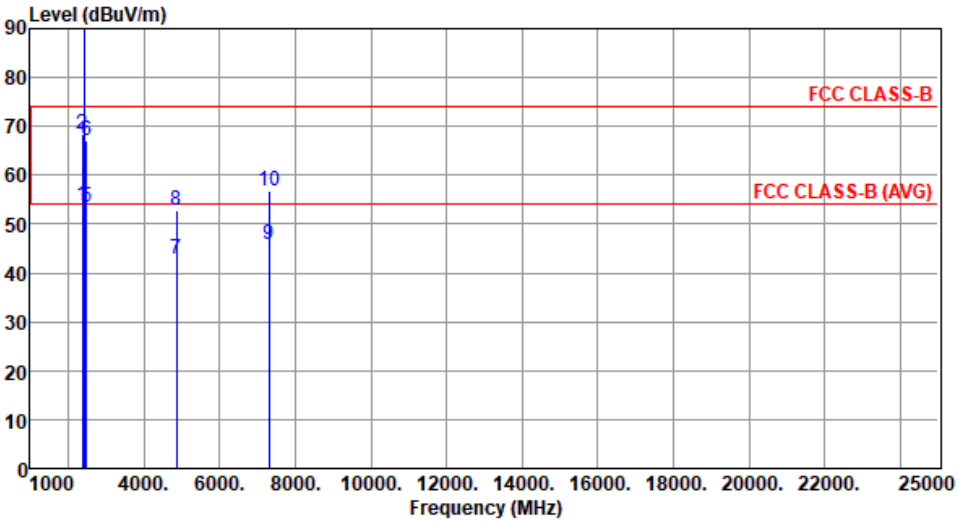
Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	51.47	54.00	-2.53	54.27	-2.80	Average	249	213
2		2390.00	63.48	74.00	-10.52	66.28	-2.80	Peak	249	213
3	*	2437.00	108.48			111.49	-3.01	Average	249	213
4	*	2437.00	118.19			121.20	-3.01	Peak	249	213
5		2483.50	51.37	54.00	-2.63	54.40	-3.03	Average	249	213
6		2483.50	63.44	74.00	-10.56	66.47	-3.03	Peak	249	213
7		4874.00	44.87	54.00	-9.13	41.23	3.64	Average	100	310
8		4874.00	55.59	74.00	-18.41	51.95	3.64	Peak	100	310
9		7311.00	47.83	54.00	-6.17	38.56	9.27	Average	156	312
10		7311.00	58.22	74.00	-15.78	48.95	9.27	Peak	156	312

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:"*" is Peak / Average value of fundamental frequency

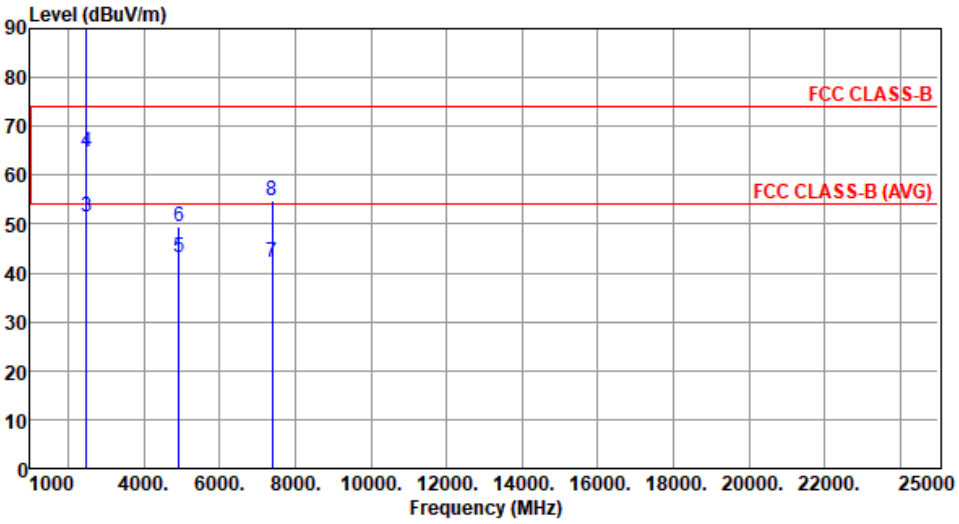
Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	53.89	54.00	-0.11	56.69	-2.80	Average	100	241
2		2390.00	68.53	74.00	-5.47	71.33	-2.80	Peak	100	241
3	*	2437.00	110.44			113.45	-3.01	Average	100	241
4	*	2437.00	119.66			122.67	-3.01	Peak	100	241
5		2483.50	53.60	54.00	-0.40	56.63	-3.03	Average	100	241
6		2483.50	67.11	74.00	-6.89	70.14	-3.03	Peak	100	241
7		4874.00	42.73	54.00	-11.27	39.09	3.64	Average	100	10
8		4874.00	52.74	74.00	-21.26	49.10	3.64	Peak	100	10
9		7311.00	45.77	54.00	-8.23	36.50	9.27	Average	162	295
10		7311.00	56.87	74.00	-17.13	47.60	9.27	Peak	162	295

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:"*" is Peak / Average value of fundamental frequency

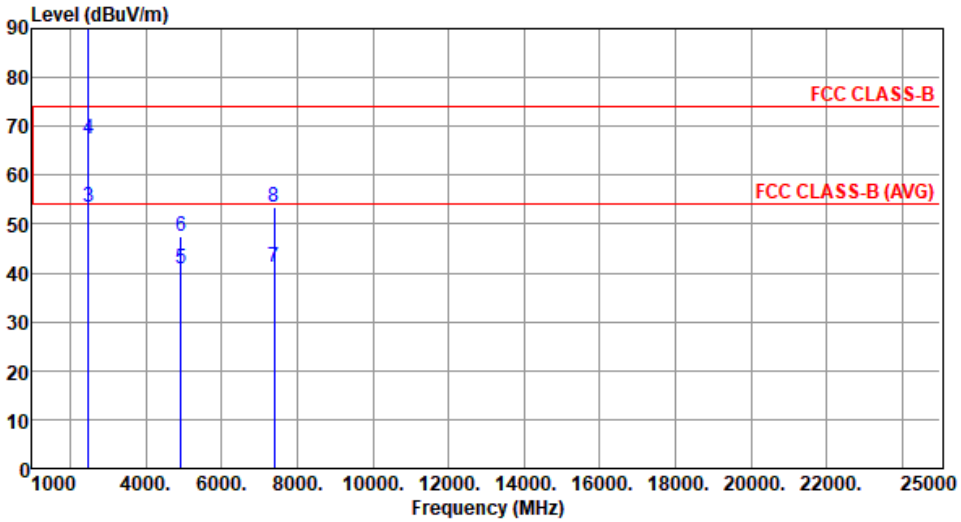
Modulation	ax HE20	Test Freq. (MHz)	2462
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	102.67			105.73	-3.06	Average	186	206
2	*	2462.00	112.39			115.45	-3.06	Peak	186	206
3		2483.50	51.43	54.00	-2.57	54.46	-3.03	Average	186	206
4		2483.50	64.81	74.00	-9.19	67.84	-3.03	Peak	186	206
5		4924.00	43.17	54.00	-10.83	39.48	3.69	Average	100	325
6		4924.00	49.35	74.00	-24.65	45.66	3.69	Peak	100	325
7		7386.00	42.06	54.00	-11.94	32.99	9.07	Average	100	314
8		7386.00	54.69	74.00	-19.31	45.62	9.07	Peak	100	314

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:"*" is Peak / Average value of fundamental frequency

Modulation	ax HE20	Test Freq. (MHz)	2462
Polarization	Vertical		

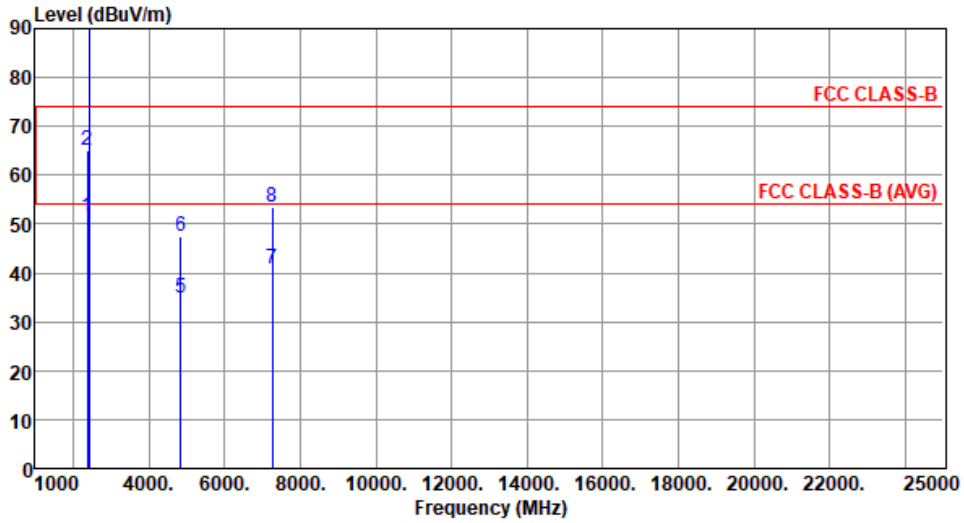


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	104.90			107.96	-3.06	Average	100	240
2	*	2462.00	115.15			118.21	-3.06	Peak	100	240
3		2483.50	53.57	54.00	-0.43	56.60	-3.03	Average	100	240
4		2483.50	67.43	74.00	-6.57	70.46	-3.03	Peak	100	240
5		4924.00	40.76	54.00	-13.24	37.07	3.69	Average	100	5
6		4924.00	47.63	74.00	-26.37	43.94	3.69	Peak	100	5
7		7386.00	41.06	54.00	-12.94	31.99	9.07	Average	100	20
8		7386.00	53.40	74.00	-20.60	44.33	9.07	Peak	100	20

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:"*" is Peak / Average value of fundamental frequency

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax HE40

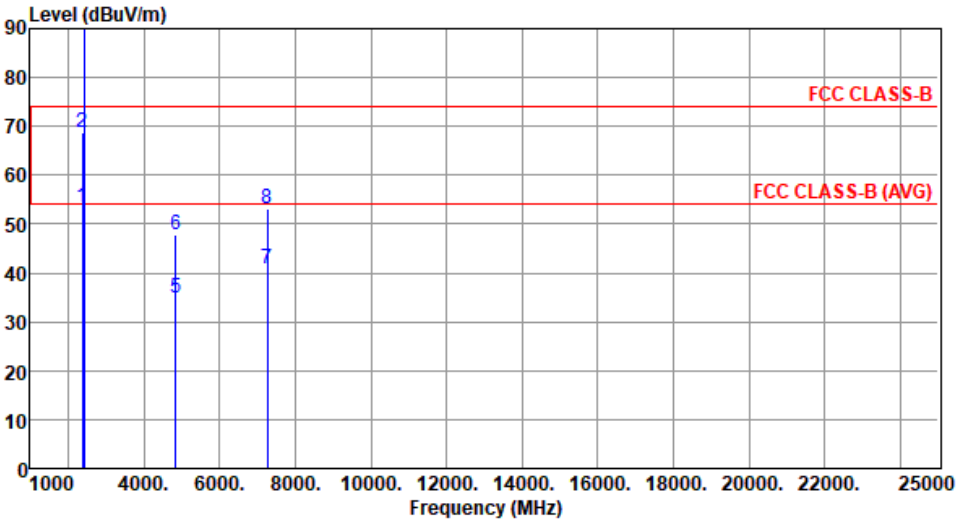
Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Horizontal		



		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	51.40	54.00	-2.60	54.20	-2.80	Average	190	206
2		2390.00	65.04	74.00	-8.96	67.84	-2.80	Peak	190	206
3	*	2422.00	97.42			100.36	-2.94	Average	190	206
4	*	2422.00	106.37			109.31	-2.94	Peak	190	206
5		4844.00	34.71	54.00	-19.29	31.06	3.65	Average	100	30
6		4844.00	47.38	74.00	-26.62	43.73	3.65	Peak	100	30
7		7266.00	40.86	54.00	-13.14	31.53	9.33	Average	100	60
8		7266.00	53.46	74.00	-20.54	44.13	9.33	Peak	100	60

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:"*" is Peak / Average value of fundamental frequency

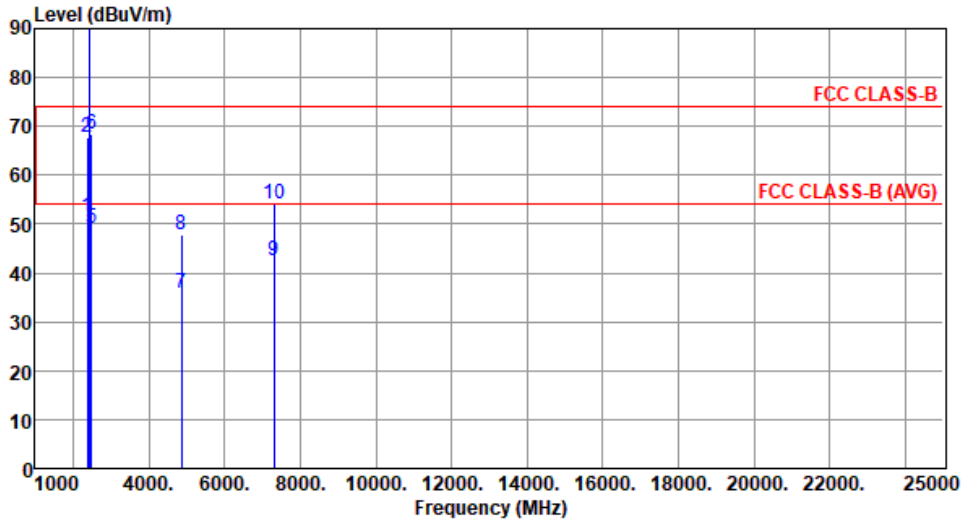
Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Vertical		



		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	53.54	54.00	-0.46	56.34	-2.80	Average	168	243
2		2390.00	68.73	74.00	-5.27	71.53	-2.80	Peak	168	243
3	*	2422.00	99.84			102.78	-2.94	Average	168	243
4	*	2422.00	108.25			111.19	-2.94	Peak	168	243
5		4844.00	34.80	54.00	-19.20	31.15	3.65	Average	100	40
6		4844.00	47.66	74.00	-26.34	44.01	3.65	Peak	100	40
7		7266.00	40.73	54.00	-13.27	31.40	9.33	Average	100	50
8		7266.00	53.29	74.00	-20.71	43.96	9.33	Peak	100	50

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:"*" is Peak / Average value of fundamental frequency

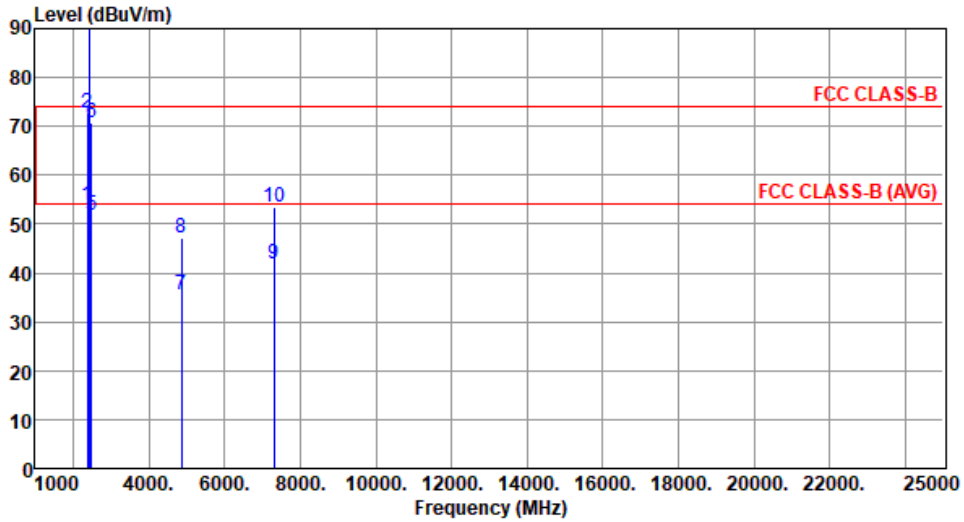
Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Horizontal		



		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	51.51	54.00	-2.49	54.31	-2.80	Average	183	201
2		2390.00	67.80	74.00	-6.20	70.60	-2.80	Peak	183	201
3	*	2437.00	100.42			103.43	-3.01	Average	183	201
4	*	2437.00	109.63			112.64	-3.01	Peak	183	201
5		2483.50	49.26	54.00	-4.74	52.29	-3.03	Average	183	201
6		2483.50	68.29	74.00	-5.71	71.32	-3.03	Peak	183	201
7		4874.00	35.83	54.00	-18.17	32.19	3.64	Average	100	325
8		4874.00	47.73	74.00	-26.27	44.09	3.64	Peak	100	325
9		7311.00	42.49	54.00	-11.51	33.22	9.27	Average	100	315
10		7311.00	54.00	74.00	-20.00	44.73	9.27	Peak	100	315

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:"*" is Peak / Average value of fundamental frequency

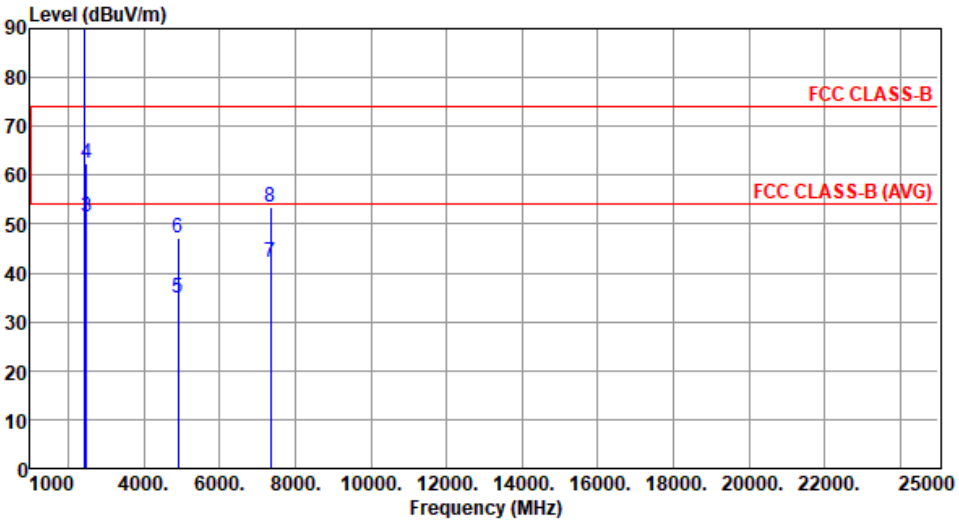
Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Vertical		



		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	53.66	54.00	-0.34	56.46	-2.80	Average	105	246
2		2390.00	72.69	74.00	-1.31	75.49	-2.80	Peak	105	246
3	*	2437.00	102.56			105.57	-3.01	Average	105	246
4	*	2437.00	111.74			114.75	-3.01	Peak	105	246
5		2483.50	51.84	54.00	-2.16	54.87	-3.03	Average	105	246
6		2483.50	70.59	74.00	-3.41	73.62	-3.03	Peak	105	246
7		4874.00	35.60	54.00	-18.40	31.96	3.64	Average	100	20
8		4874.00	47.17	74.00	-26.83	43.53	3.64	Peak	100	20
9		7311.00	42.00	54.00	-12.00	32.73	9.27	Average	100	40
10		7311.00	53.61	74.00	-20.39	44.34	9.27	Peak	100	40

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:"*" is Peak / Average value of fundamental frequency

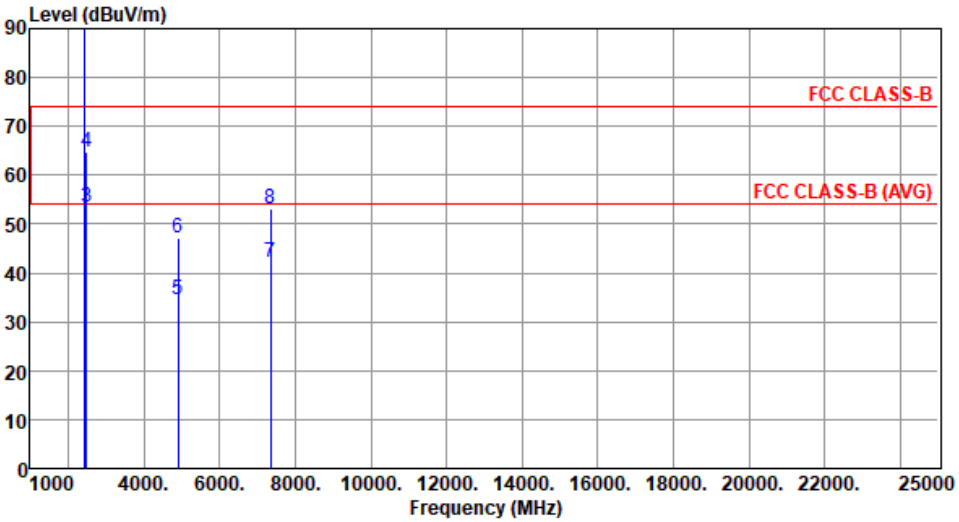
Modulation	ax HE40	Test Freq. (MHz)	2452
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2452.00	96.79			99.86	-3.07	Average	186	202
2	*	2452.00	106.06			109.13	-3.07	Peak	186	202
3		2483.50	51.47	54.00	-2.53	54.50	-3.03	Average	100	255
4		2483.50	62.54	74.00	-11.46	65.57	-3.03	Peak	100	255
5		4904.00	34.76	54.00	-19.24	31.13	3.63	Average	100	60
6		4904.00	47.27	74.00	-26.73	43.64	3.63	Peak	100	60
7		7356.00	42.17	54.00	-11.83	33.09	9.08	Average	100	80
8		7356.00	53.41	74.00	-20.59	44.33	9.08	Peak	100	80

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:"*" is Peak / Average value of fundamental frequency

Modulation	ax HE40	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	*	2452.00	98.69			101.76	-3.07	Average	177	248
2	*	2452.00	108.15			111.22	-3.07	Peak	177	248
3		2483.50	53.61	54.00	-0.39	56.64	-3.03	Average	102	72
4		2483.50	64.74	74.00	-9.26	67.77	-3.03	Peak	102	72
5		4904.00	34.63	54.00	-19.37	31.00	3.63	Average	100	50
6		4904.00	47.08	74.00	-26.92	43.45	3.63	Peak	100	50
7		7356.00	42.07	54.00	-11.93	32.99	9.08	Average	100	40
8		7356.00	53.17	74.00	-20.83	44.09	9.08	Peak	100	40

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:"*" is Peak / Average value of fundamental frequency

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 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.6.2 Test Procedures

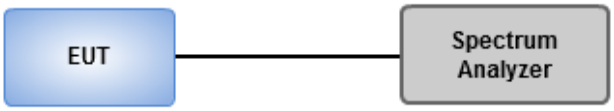
Reference level measurement

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

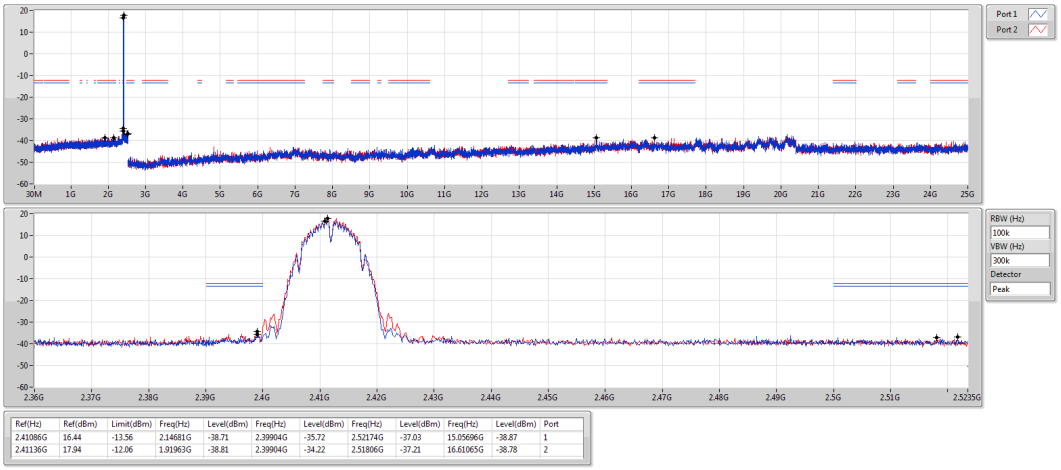
3.6.3 Test Setup



3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

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

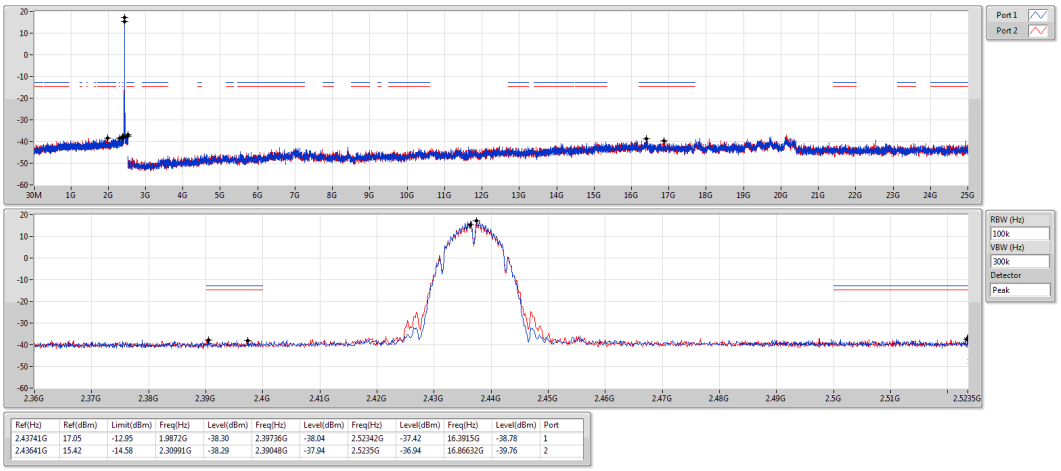
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41086G	16.44	-13.56	2.14681G	-38.71	2.39904G	-35.72	2.52174G	-37.03	15.05696G	-38.87	1
2.41136G	17.94	-12.06	1.91963G	-38.81	2.39904G	-34.22	2.51806G	-37.21	16.61065G	-38.78	2

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

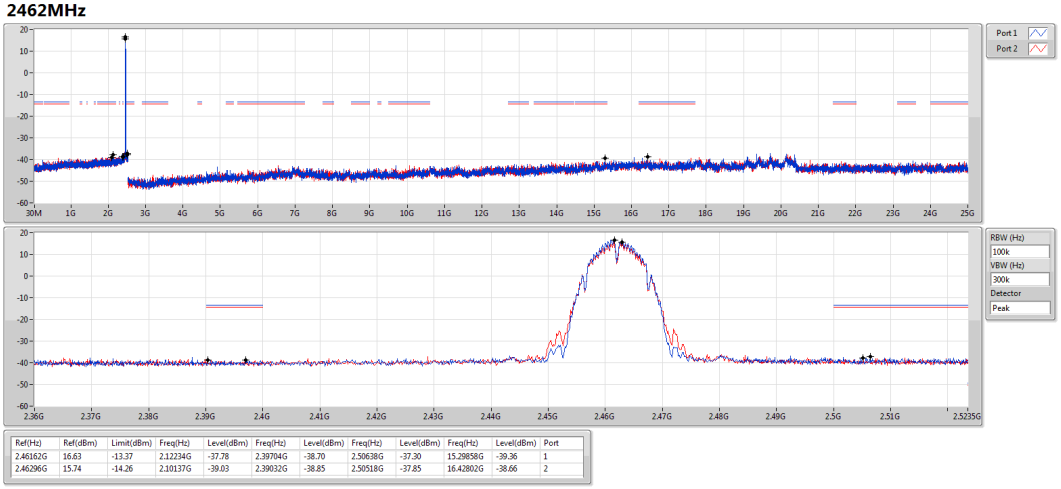
2437MHz



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	17.05	-12.95	1.9872G	-38.30	2.39736G	-38.04	2.52342G	-37.42	16.3915G	-38.78	1
2.43641G	15.42	-14.58	2.30991G	-38.29	2.39048G	-37.94	2.5235G	-36.94	16.86632G	-39.76	2

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

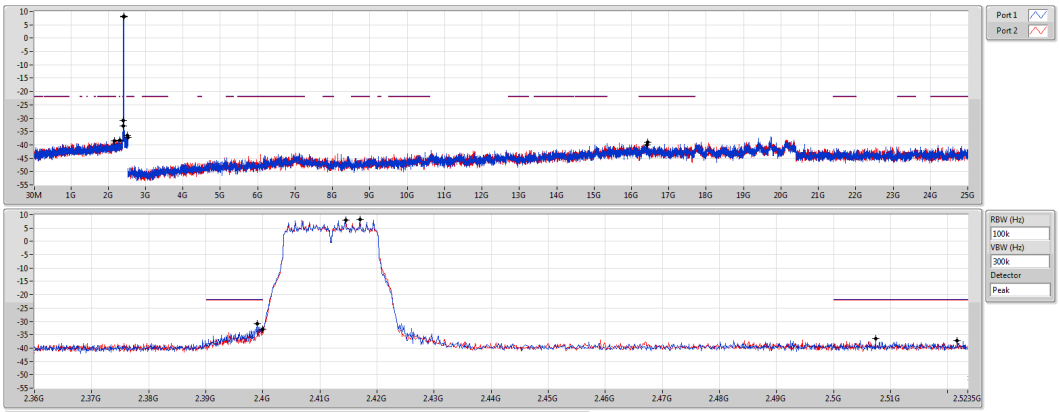
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46162G	16.63	-13.37	2.12234G	-37.78	2.39704G	-38.70	2.50638G	-37.30	15.29858G	-39.36	1
2.46296G	15.74	-14.26	2.10137G	-39.03	2.39032G	-38.85	2.50518G	-37.85	16.42802G	-38.66	2

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

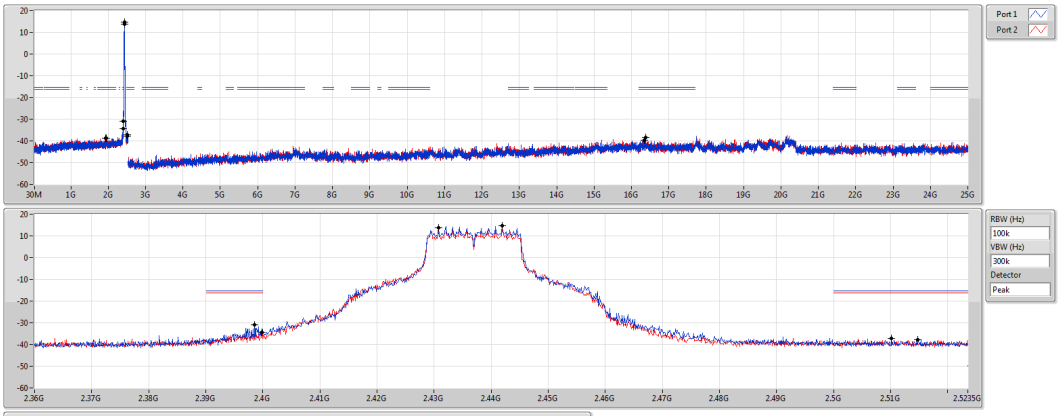
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41703G	8.14	-21.86	2.30758G	-38.20	2.39896G	-30.81	2.50734G	-36.58	16.43645G	-38.91	1
2.41453G	8.03	-21.97	2.16428G	-38.60	2.39992G	-32.90	2.52166G	-37.25	16.42241G	-40.01	2

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

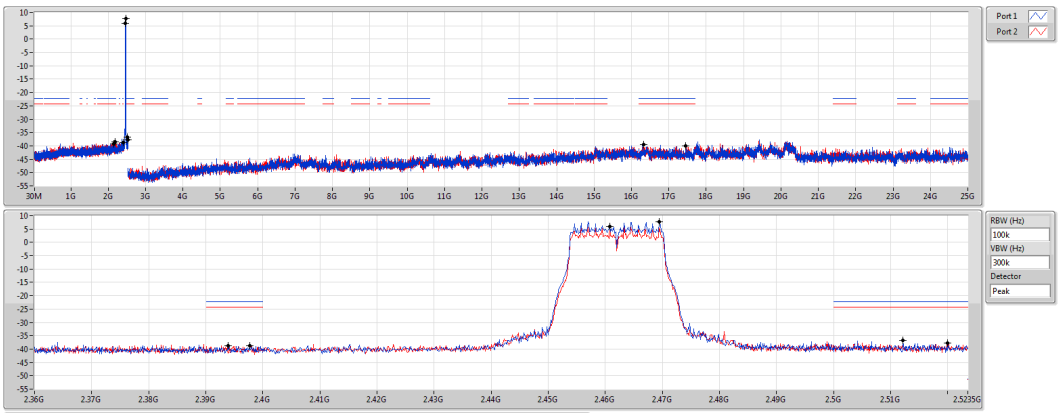
2437MHz



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	14.70	-15.30	1.94992G	-38.90	2.39856G	-31.07	2.51478G	-37.88	16.37464G	-38.57	1
2.43073G	13.61	-16.39	1.92429G	-38.68	2.39984G	-34.35	2.51014G	-37.16	16.33812G	-39.55	2

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

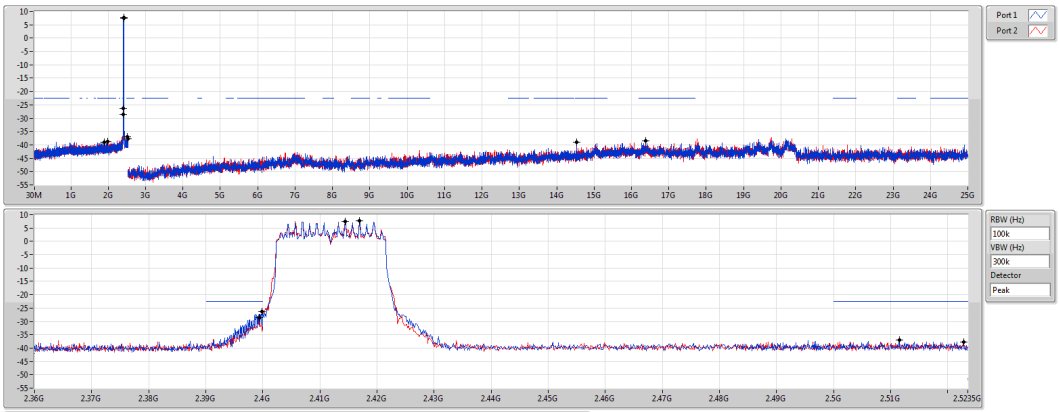
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46947G	7.72	-22.28	2.15263G	-39.19	2.39392G	-38.68	2.51214G	-36.69	16.33531G	-39.60	1
2.46079G	5.83	-24.17	2.19108G	-38.62	2.39776G	-38.63	2.51998G	-37.84	17.45632G	-40.04	2

802.11ax HEW20_Nss1,(MCS0)_2TX **CSE NdB**

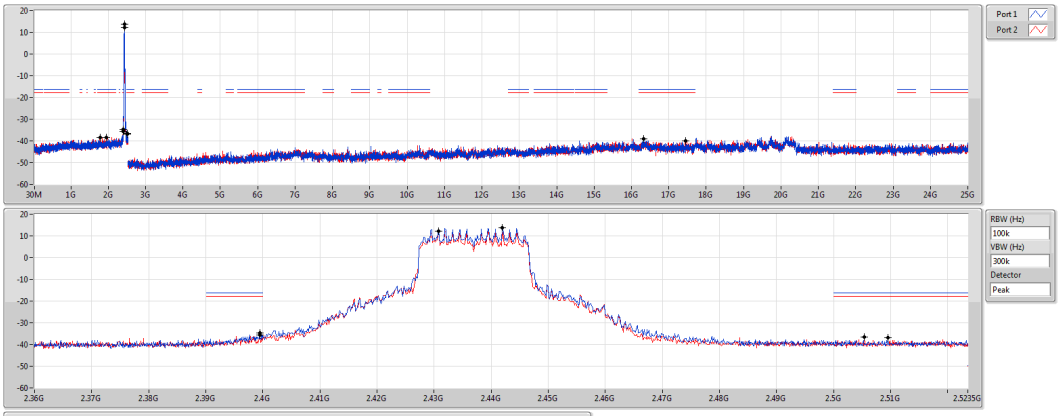
2412MHz



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	7.61	-22.39	1.90099G	-39.00	2.39984G	-26.42	2.51158G	-37.00	14.53438G	-38.93	1
2.41436G	7.38	-22.62	1.98138G	-38.78	2.39936G	-28.66	2.52278G	-37.78	16.38869G	-38.55	2

802.11ax HEW20_Nss1,(MCS0)_2TX **CSE NdB**

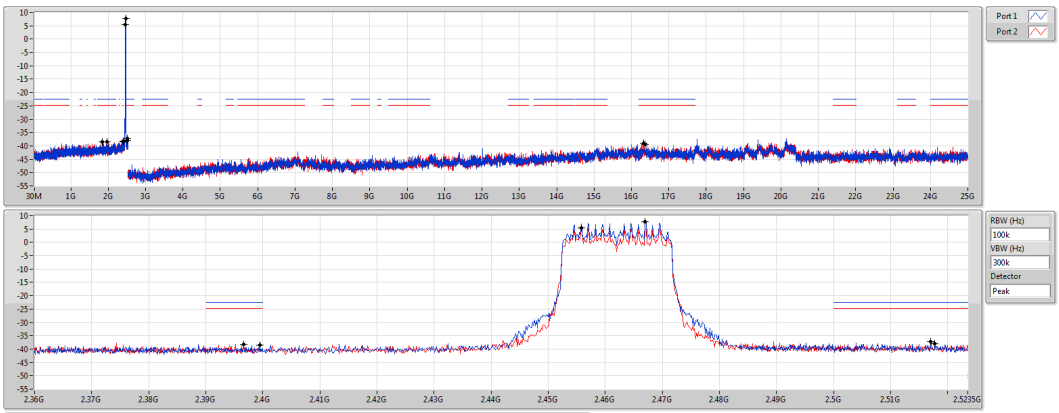
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44192G	13.86	-16.14	1.94293G	-38.35	2.39944G	-35.52	2.5095G	-36.97	16.32688G	-39.08	1
2.43073G	12.08	-17.92	1.7775G	-38.39	2.39944G	-34.79	2.50534G	-36.52	17.45071G	-39.97	2

802.11ax HEW20_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	7.59	-22.41	1.9674G	-38.61	2.39952G	-38.48	2.51694G	-37.33	16.3325G	-39.03	1
2.45578G	5.32	-24.68	1.84391G	-38.50	2.39664G	-38.12	2.51774G	-37.99	16.36621G	-39.48	2

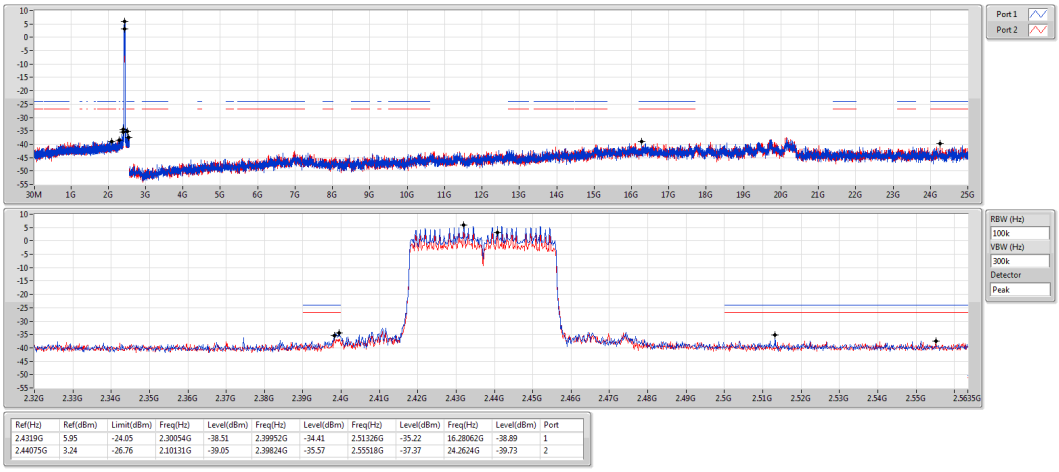
802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

2422MHz

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41687G	2.70	-27.30	1.97765G	-39.13	2.39776G	-37.93	2.52206G	-37.18	16.43206G	-39.37	1
2.41687G	1.65	-28.35	2.15856G	-38.85	2.3904G	-38.63	2.5475G	-37.73	17.36598G	-39.16	2

802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

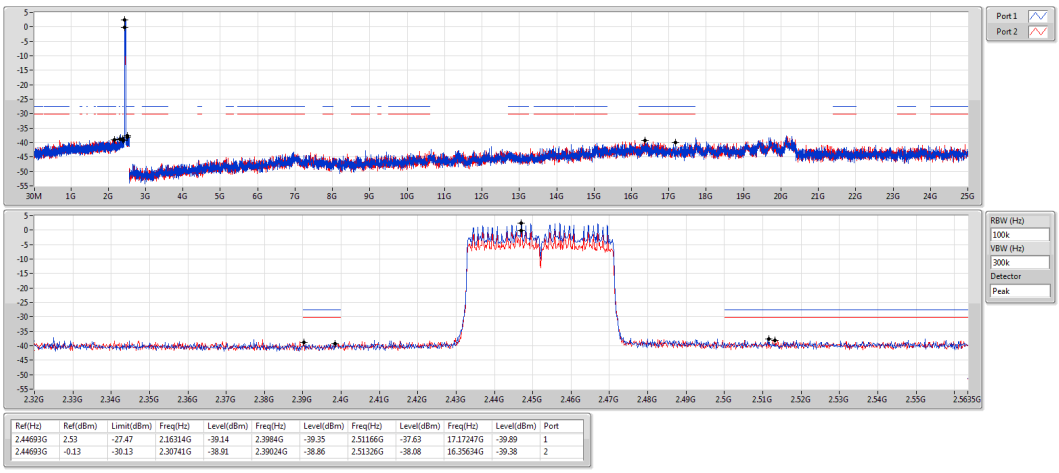
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.4319G	5.95	-24.05	2.30054G	-38.51	2.39952G	-34.41	2.51326G	-35.22	16.28062G	-38.89	1
2.44075G	3.24	-26.76	2.10131G	-39.05	2.39824G	-35.57	2.55518G	-37.37	24.2624G	-39.73	2

802.11ax HEW40_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
2.44693G	2.53	-27.47	2.16314G	-39.14	2.3984G	-39.35	2.51166G	-37.63	17.17247G	-39.89	1
2.44693G	-0.13	-30.13	2.30741G	-38.91	2.39024G	-38.86	2.51326G	-38.08	16.35634G	-39.38	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

==END==