FCC Test Report

FCC ID	:	**I8811AXAP24**
Equipment	:	**802.11ax (WiFi 6) Dual-Radio Unified Access Point**
Model No.	:	**WAX610D, NWA210AX**
Multiple Listing	:	**Refer to item 1.1.1 for more details.**
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	:	**Apr. 06, 2020**
Tested Date	:	**Apr. 23 ~ May 11, 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

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Release Record

Report No.	Version	Description	Issued Date
FR040603AC	Rev. 01	Initial issue	May 28, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 2.962MHz 42.56 (Margin -3.44dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 7386.00MHz 53.71 (Margin -0.29dB) – AV [dBuV/m at 3m]: 2483.50MHz 73.71 (Margin -0.29dB) – PK	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 23.96 ***Beamforming mode*** 20.54	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 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
ZYXEL	WAX610D	802.11ax (WiFi 6) Dual-Radio Unified Access Point	Difference between two models is software.
	NWA210AX	802.11ax (WiFi 6) Dual-Radio PoE Access Point	
✦ The above models, model **WAX610D** was selected as a representative one for the final test and only its data was recorded in this report.			

1.1.2 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.

1.1.3 Antenna Details

Ant. No.	Model	Type	Connector	Antenna Gain (dBi)
1	AP886-V3	PIFA	IPEX	0
2	AP886-V3	Dipole	IPEX	0
3	AP886-V3	Dipole	IPEX	0

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter 30~57Vdc from POE

Note: The above power supply for POE is not bundled in market.

1.1.5 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter (Only for model: NWA210AX)	Brand: APD Model: WA-24Q12R I/P: 100-240Vac, 50-60Hz, 0.7A Max O/P: 12Vdc, 2A Power Line: DC 1.45m non-shielded without core

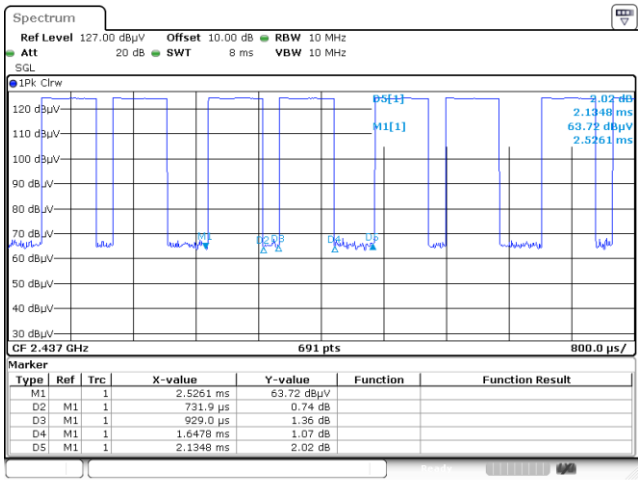
1.1.6 Channel List

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	---	---

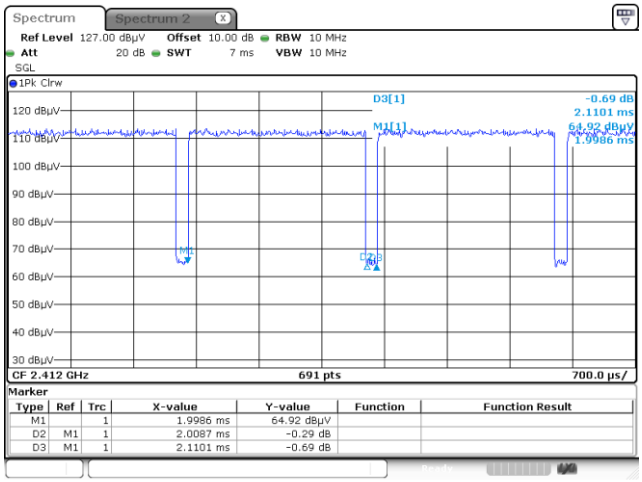
1.1.7 Test Tool and Duty Cycle

Test Tool	QSPR, v5.0-00170		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11b	67.95%	1.68
	11g	95.19%	0.21
	ax (HE20)	87.06%	0.60
	ax (HE40)	86.41%	0.63

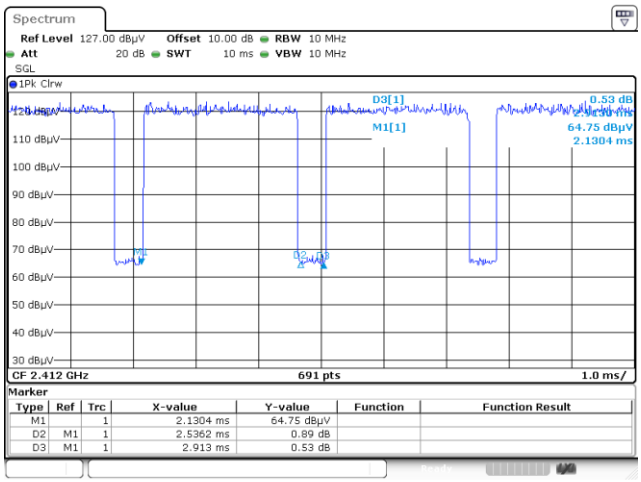
11b



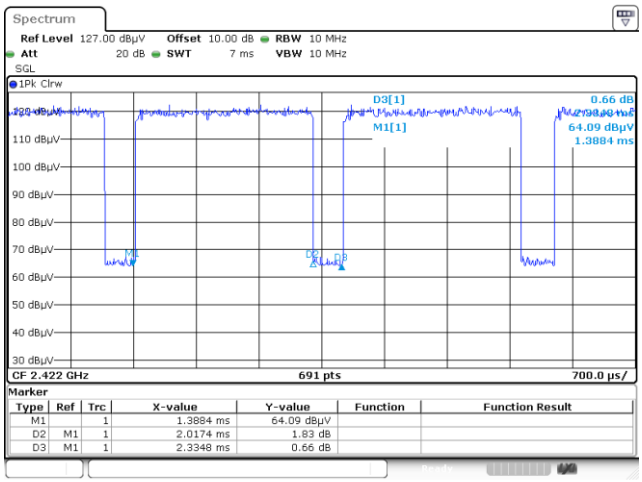
11g



ax HE20



ax HE40



1.1.8 Power Index of Test Tool

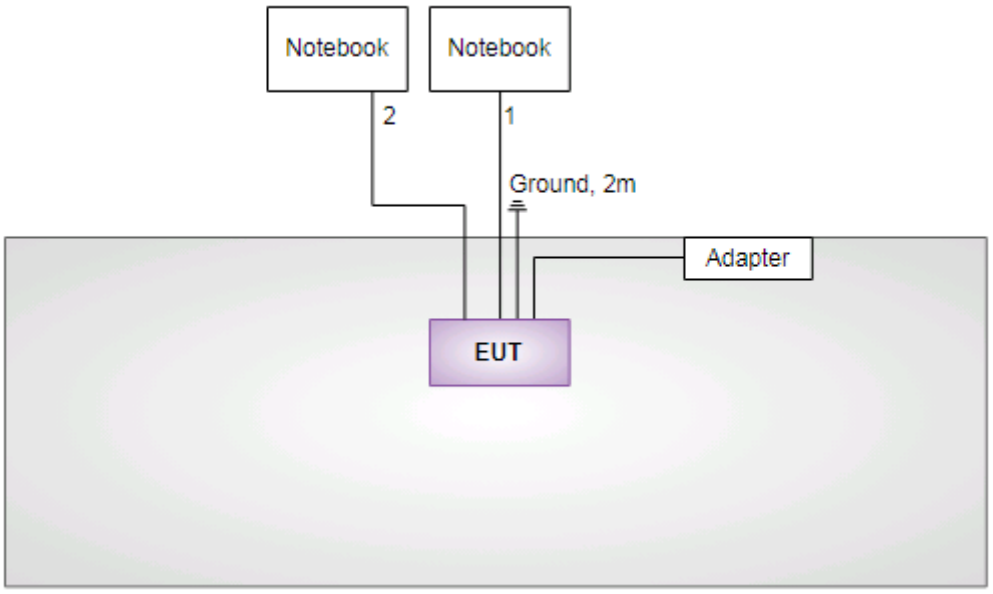
Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	20.5
11b	2437	20.5
11b	2462	20
11g	2412	20
11g	2437	20.5
11g	2462	20
ax (HE20)	2412	21
ax (HE20)	2437	24
ax (HE20)	2462	21
ax (HE40)	2422	17
ax (HE40)	2437	17.5
ax (HE40)	2452	16

1.2 Local Support Equipment List

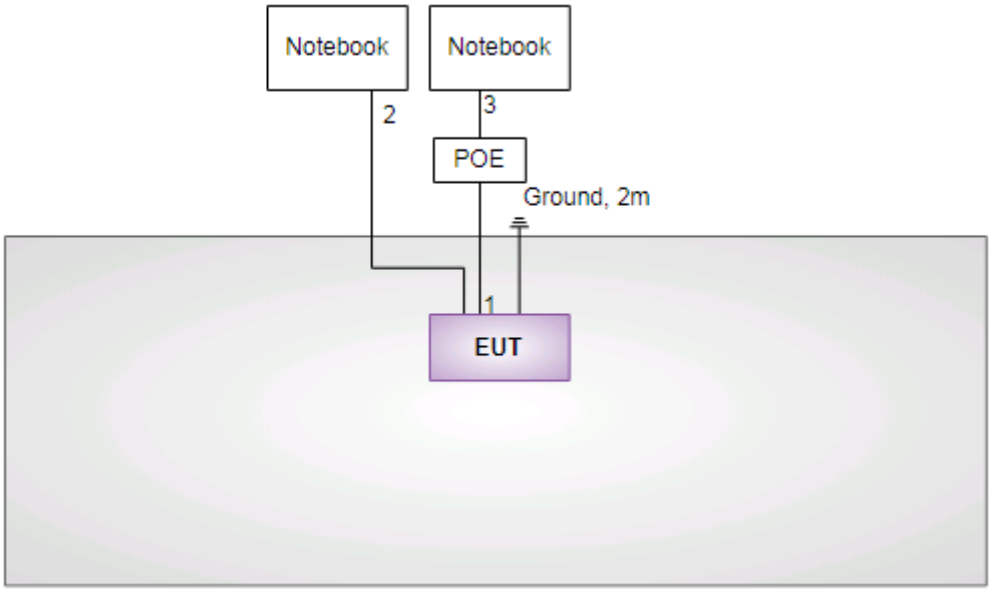
Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---
2	Notebook	DELL	Latitude E5420	DoC	---
3	Ground Cable	ICC	GC-2m	---	---
4	RJ45	ICC	RJ45-10m	---	---
5	RJ45	ICC	RJ45-10m	---	---
6	RJ45	ICC	RJ45-1.3m	---	---
7	POE Switch	ZYXEL	XS1930-12HP	---	Provided by applicant.

1.3 Test Setup Chart

Test Setup Diagram (Adapter mode)



No.	Signal cable / Length (m)
1	RJ45, 10m non-shielded.
2	RJ45, 10m non-shielded.

Test Setup Diagram (POE mode)	
	
No.	**Signal cable / Length (m)**
1	RJ45, 10m non-shielded.
2	RJ45, 10m non-shielded.
3	RJ45, 1m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	May 06 ~ May 11, 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. 12, 2020	Mar. 11, 2021
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 chamber 3 / (03CH03-WS)				
Tested Date	Apr. 23 ~ May 09, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Jan. 09, 2020	Jan. 08, 2021
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 12, 2019	Jul. 11, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 27, 2019	Dec. 26, 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	980187	Aug. 14, 2019	Aug. 13, 2020
Preamplifier	Agilent	83017A	MY53270014	Aug. 07, 2019	Aug. 06, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/**4**	Sep. 27, 2019	Sep. 26, 2020
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 27, 2019	Sep. 26, 2020
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Sep. 27, 2019	Sep. 26, 2020
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 27, 2019	Sep. 26, 2020
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 27, 2019	Sep. 26, 2020
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 27, 2019	Sep. 26, 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	Apr. 30, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 02, 2019	Dec. 01, 2020
Measurement Software	Sporton	SENSE-15247_DTS	V5.9	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	±3.96 dB
Radiated emission > 1GHz	±4.51 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	25°C / 57%	Alex Tsai
Radiated Emissions	03CH03-WS	23-24°C / 63-64%	Brad Wu
RF Conducted	TH01-WS	25°C / 66%	Aska Huang

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11b	2412	1 Mbps	1, 2
Radiated Emissions ≤1GHz	11b	2412	1 Mbps	1, 2
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	1
Maximum Output Power	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	3
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	1

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.
2. The EUT had been tested by following test configurations.
   1) Configuration 1: Adapter mode, Non-Beamforming
   2) Configuration 2: POE mode, Non-Beamforming
   3) Configuration 3: Adapter mode, Beamforming

3 Transmitter Test Results

3.1 Conducted Emissions

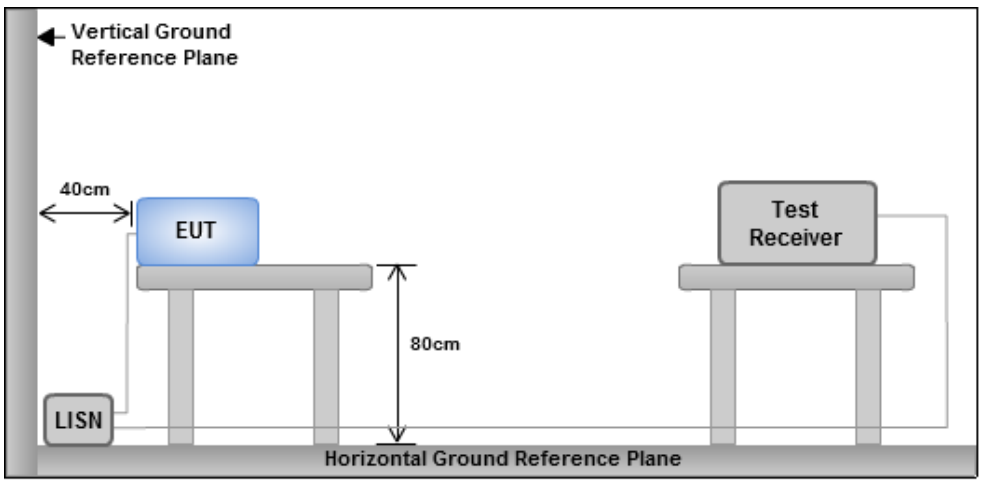
3.1.1 Limit of Conducted Emissions

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

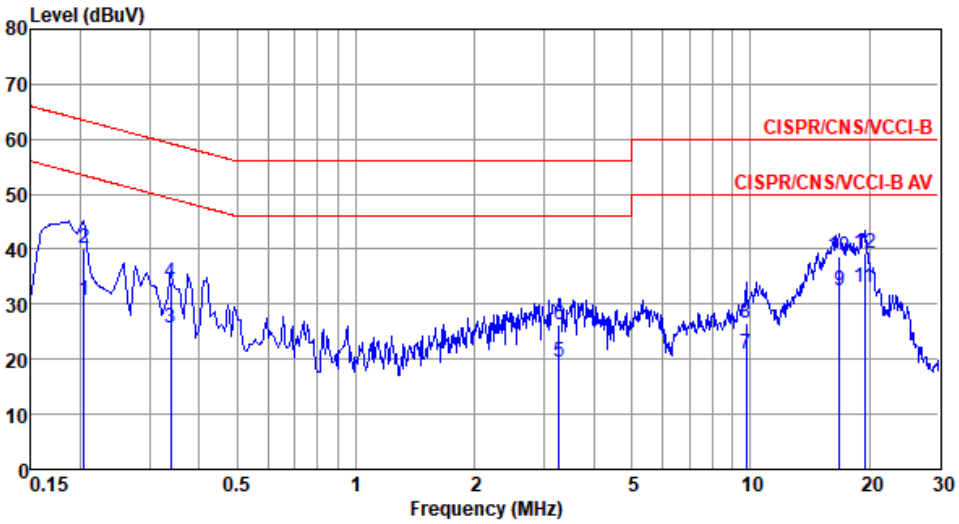


Note: 1. Support units were connected to second LISN.

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

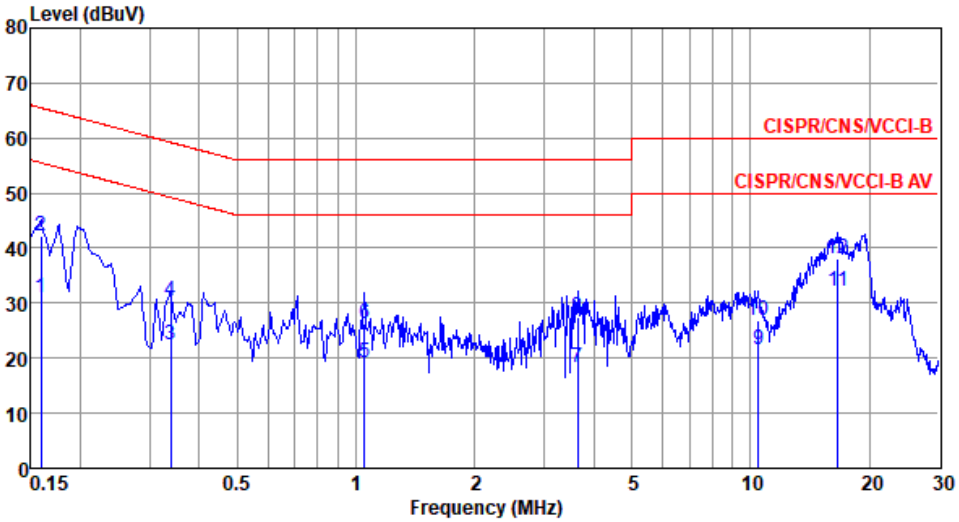
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Line	Test Configuration	1



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.204	30.58	53.45	-22.87	20.70	9.63	0.06	Average
2	0.204	40.05	63.45	-23.40	30.17	9.63	0.06	QP
3	0.339	25.58	49.22	-23.64	15.63	9.63	0.08	Average
4	0.339	34.07	59.22	-25.15	24.12	9.63	0.08	QP
5	3.276	19.58	46.00	-26.42	9.31	9.65	0.26	Average
6	3.276	26.40	56.00	-29.60	16.13	9.65	0.26	QP
7	9.757	21.00	50.00	-29.00	10.52	9.69	0.39	Average
8	9.757	26.69	60.00	-33.31	16.21	9.69	0.39	QP
9	16.839	32.34	50.00	-17.66	21.48	9.71	0.62	Average
10	16.839	38.77	60.00	-21.23	27.91	9.71	0.62	QP
11*	19.428	33.16	50.00	-16.84	22.19	9.72	0.65	Average
12	19.428	39.32	60.00	-20.68	28.35	9.72	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).

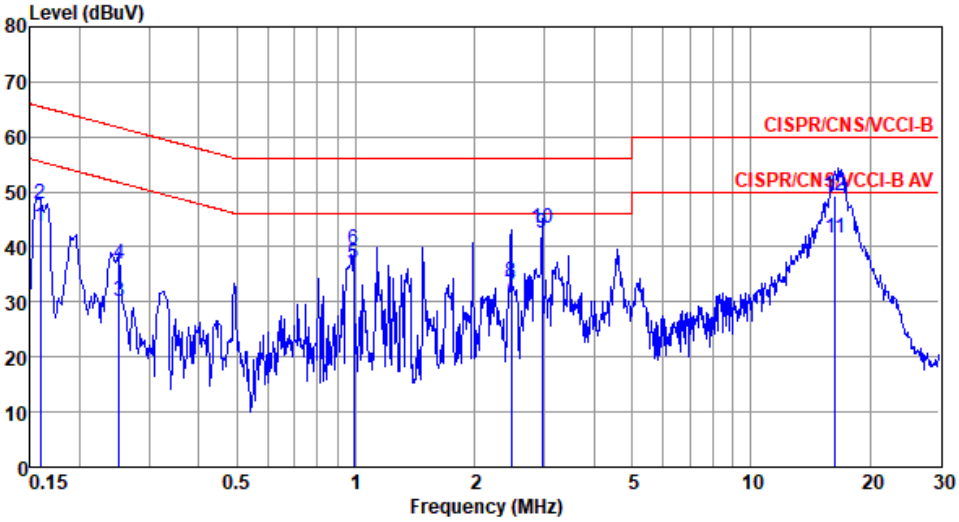
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Neutral	Test Configuration	1



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	30.87	55.52	-24.65	21.03	9.66	0.05	Average
2	0.159	42.34	65.52	-23.18	32.50	9.66	0.05	QP
3	0.339	22.29	49.22	-26.93	12.39	9.65	0.08	Average
4	0.339	30.48	59.22	-28.74	20.58	9.65	0.08	QP
5	1.049	19.17	46.00	-26.83	9.20	9.65	0.12	Average
6	1.049	26.14	56.00	-29.86	16.17	9.65	0.12	QP
7	3.642	18.42	46.00	-27.58	8.22	9.67	0.27	Average
8	3.642	27.53	56.00	-28.47	17.33	9.67	0.27	QP
9	10.452	21.43	50.00	-28.57	10.95	9.74	0.41	Average
10	10.452	26.96	60.00	-33.04	16.48	9.74	0.41	QP
11*	16.661	32.27	50.00	-17.73	21.41	9.81	0.62	Average
12	16.661	38.08	60.00	-21.92	27.22	9.81	0.62	QP

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

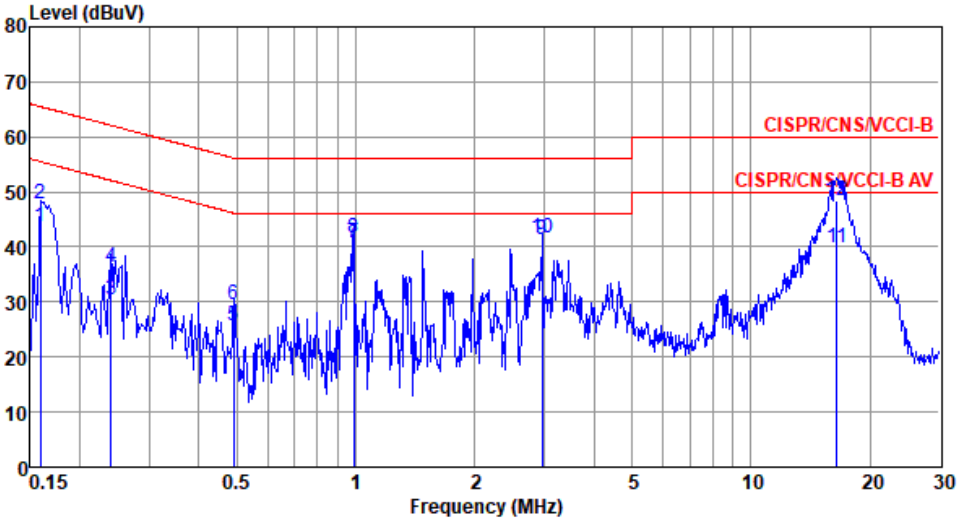
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Line	Test Configuration	2



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	43.66	55.52	-11.86	33.97	9.64	0.05	Average
2	0.159	47.92	65.52	-17.60	38.23	9.64	0.05	QP
3	0.252	30.01	51.69	-21.68	20.31	9.63	0.07	Average
4	0.252	37.03	61.69	-24.66	27.33	9.63	0.07	QP
5	0.989	36.86	46.00	-9.14	27.11	9.63	0.12	Average
6	0.989	39.53	56.00	-16.47	29.78	9.63	0.12	QP
7	2.474	31.36	46.00	-14.64	21.51	9.64	0.21	Average
8	2.474	33.73	56.00	-22.27	23.88	9.64	0.21	QP
9*	2.962	42.56	46.00	-3.44	32.67	9.65	0.24	Average
10	2.962	43.50	56.00	-12.50	33.61	9.65	0.24	QP
11	16.355	41.52	50.00	-8.48	31.19	9.71	0.62	Average
12	16.355	49.23	60.00	-10.77	38.90	9.71	0.62	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)	2412
Power Phase	Neutral	Test Configuration	2



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	43.74	55.52	-11.78	34.03	9.66	0.05	Average
2	0.159	47.82	65.52	-17.70	38.11	9.66	0.05	QP
3	0.240	30.42	52.08	-21.66	20.70	9.65	0.07	Average
4	0.240	36.25	62.08	-25.83	26.53	9.65	0.07	QP
5	0.491	25.69	46.14	-20.45	15.95	9.65	0.09	Average
6	0.491	29.52	56.14	-26.62	19.78	9.65	0.09	QP
7	0.989	40.65	46.00	-5.35	30.88	9.65	0.12	Average
8	0.989	41.71	56.00	-14.29	31.94	9.65	0.12	QP
9*	2.962	41.35	46.00	-4.65	31.44	9.67	0.24	Average
10	2.962	41.58	56.00	-14.42	31.67	9.67	0.24	QP
11	16.484	39.75	50.00	-10.25	29.32	9.81	0.62	Average
12	16.484	48.54	60.00	-11.46	38.11	9.81	0.62	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

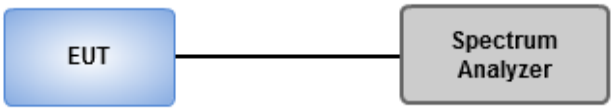
6dB Bandwidth

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	8.551M	13.025M	13M0G1D	7.029M	12.88M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.353M	16M4D1D	15.942M	16.353M
802.11ax HEW20_Nss1,(MCS0)_2TX	17.174M	18.813M	18M8D1D	13.913M	18.669M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.971M	37.916M	37M9D1D	37.971M	37.771M

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;

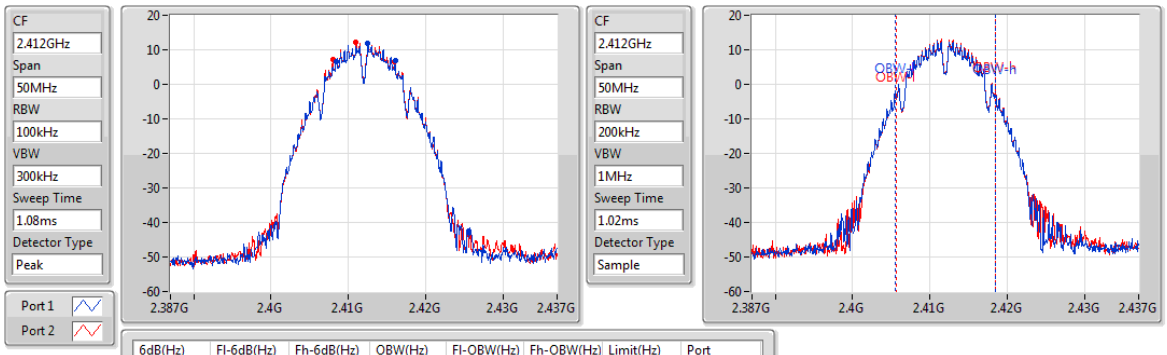
Result

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	7.609M	13.025M	7.971M	12.88M
2437MHz	Pass	500k	7.536M	12.88M	8.551M	12.88M
2462MHz	Pass	500k	7.029M	12.88M	7.536M	12.88M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.377M	16.353M	15.942M	16.353M
2437MHz	Pass	500k	16.377M	16.353M	16.304M	16.353M
2462MHz	Pass	500k	16.014M	16.353M	16.377M	16.353M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.652M	18.669M	17.174M	18.813M
2437MHz	Pass	500k	13.913M	18.813M	14.493M	18.741M
2462MHz	Pass	500k	13.913M	18.669M	16.594M	18.669M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	37.971M	37.771M	37.971M	37.771M
2437MHz	Pass	500k	37.971M	37.771M	37.971M	37.916M
2452MHz	Pass	500k	37.971M	37.771M	37.971M	37.771M

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

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

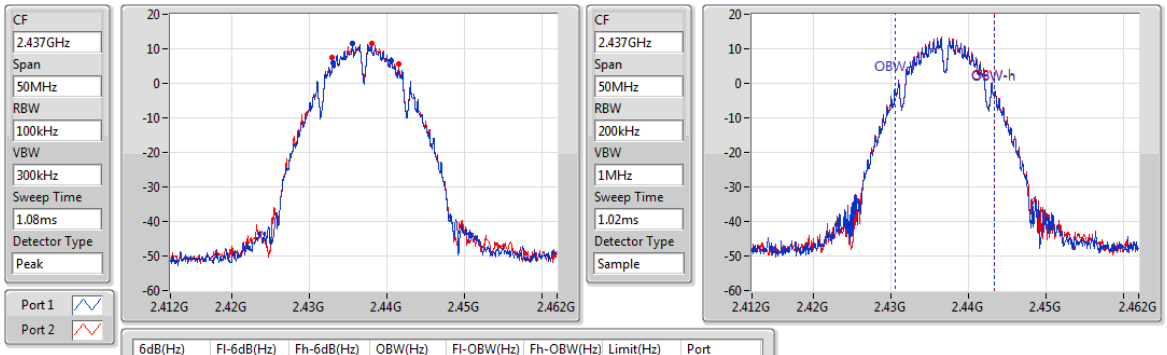
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.609M	2.408449G	2.416058G	13.025M	2.405488G	2.418512G	500k	1
7.971M	2.408014G	2.415986G	12.88M	2.405632G	2.418512G	500k	2

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

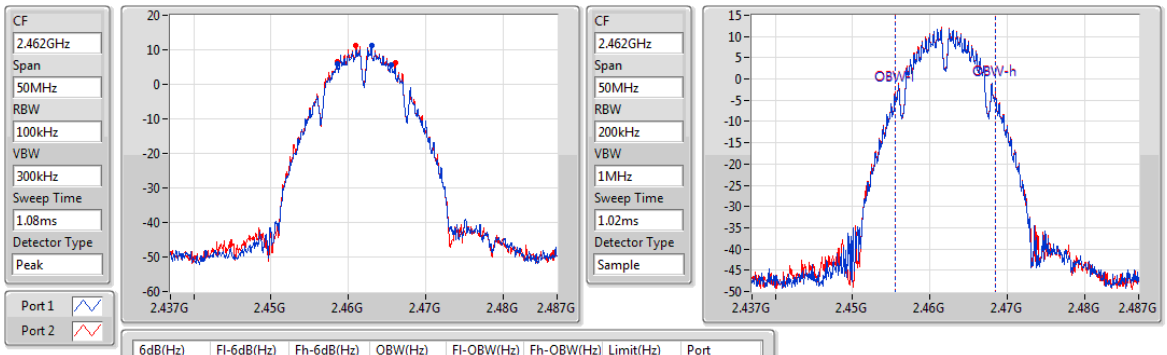
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.536M	2.433014G	2.440551G	12.88M	2.430488G	2.443368G	500k	1
8.551M	2.432942G	2.441493G	12.88M	2.430488G	2.443368G	500k	2

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

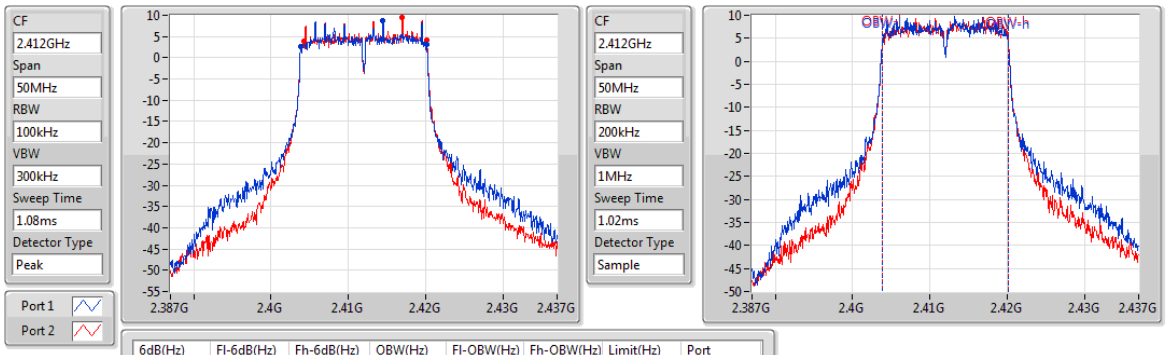
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.029M	2.458522G	2.465551G	12.88M	2.45556G	2.46844G	500k	1
7.536M	2.458522G	2.466058G	12.88M	2.45556G	2.46844G	500k	2

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

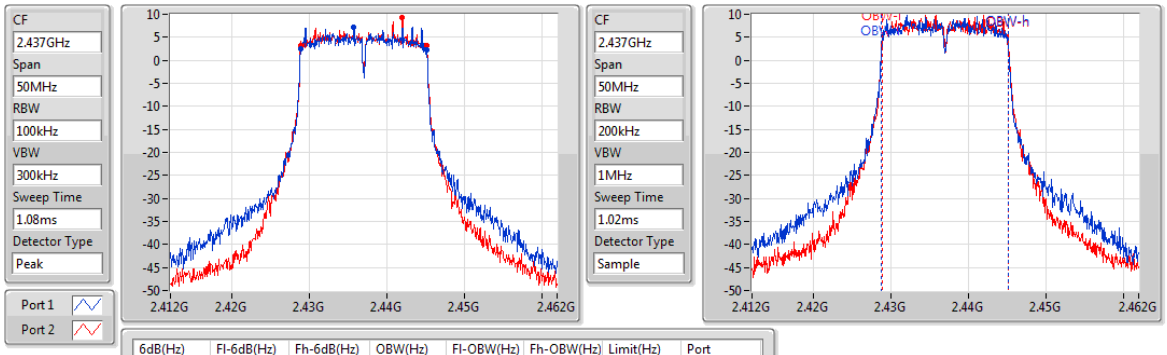
2412MHz



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	16.353M	2.403823G	2.420177G	500k	1
15.942M	2.404246G	2.420188G	16.353M	2.403823G	2.420177G	500k	2

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

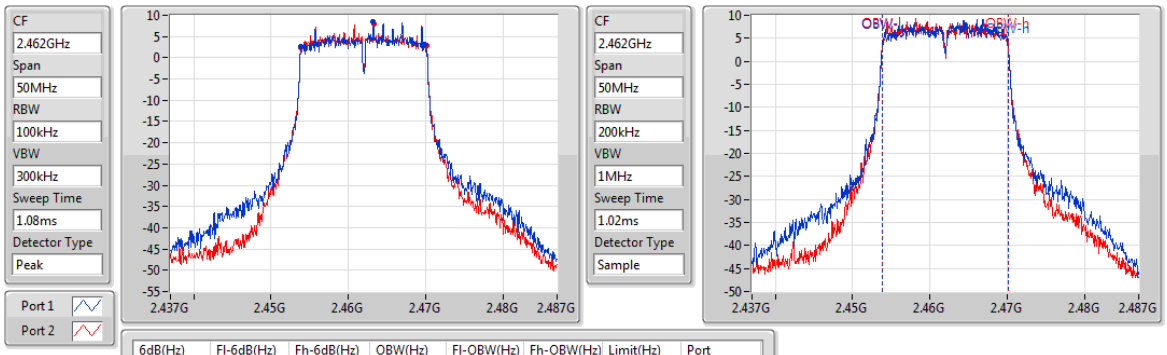
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.377M	2.428812G	2.445188G	16.353M	2.428751G	2.445104G	500k	1
16.304M	2.428812G	2.445116G	16.353M	2.428823G	2.445177G	500k	2

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

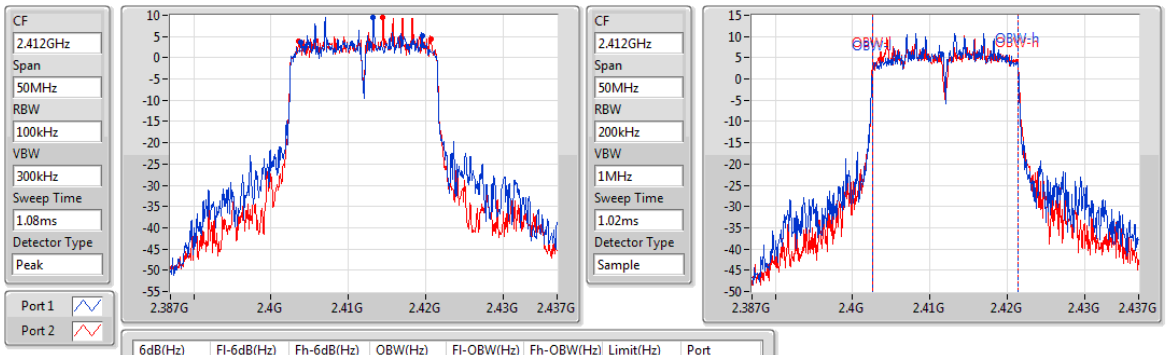
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.014M	2.453884G	2.469899G	16.353M	2.453823G	2.470177G	500k	1
16.377M	2.453812G	2.470188G	16.353M	2.453823G	2.470177G	500k	2

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

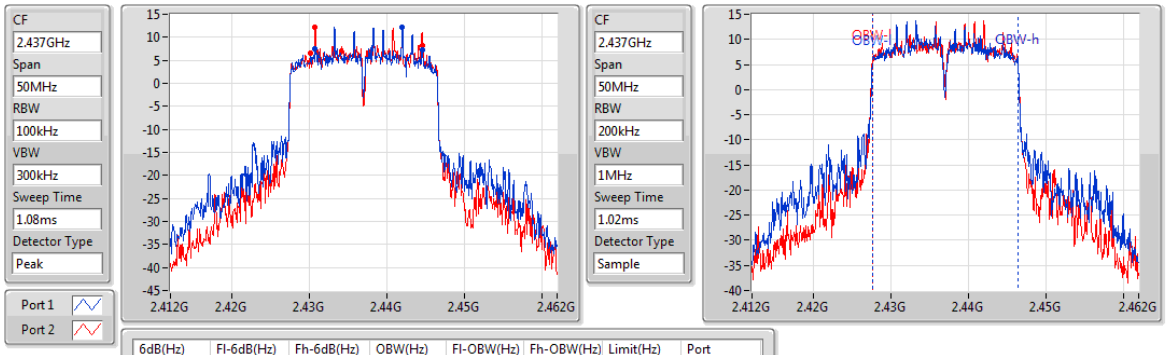
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.652M	2.403884G	2.419536G	18.669M	2.402666G	2.421334G	500k	1
17.174M	2.403594G	2.420768G	18.813M	2.402593G	2.421407G	500k	2

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

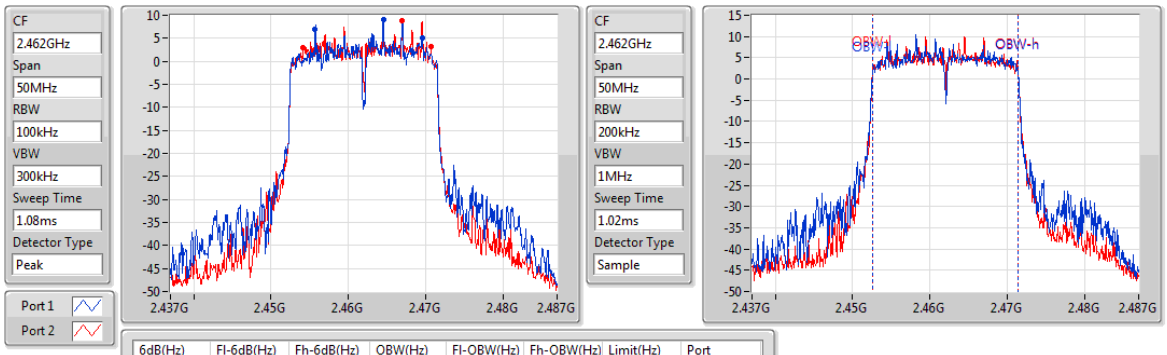
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
13.913M	2.430696G	2.444609G	18.813M	2.427593G	2.446407G	500k	1
14.493M	2.430116G	2.444609G	18.741M	2.427593G	2.446334G	500k	2

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

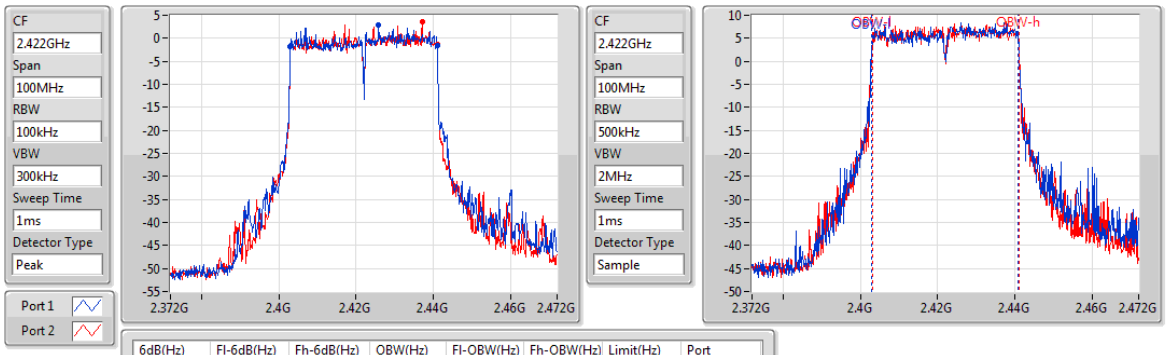
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
13.913M	2.455696G	2.469609G	18.669M	2.452666G	2.471334G	500k	1
16.594M	2.454174G	2.470768G	18.669M	2.452666G	2.471334G	500k	2

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

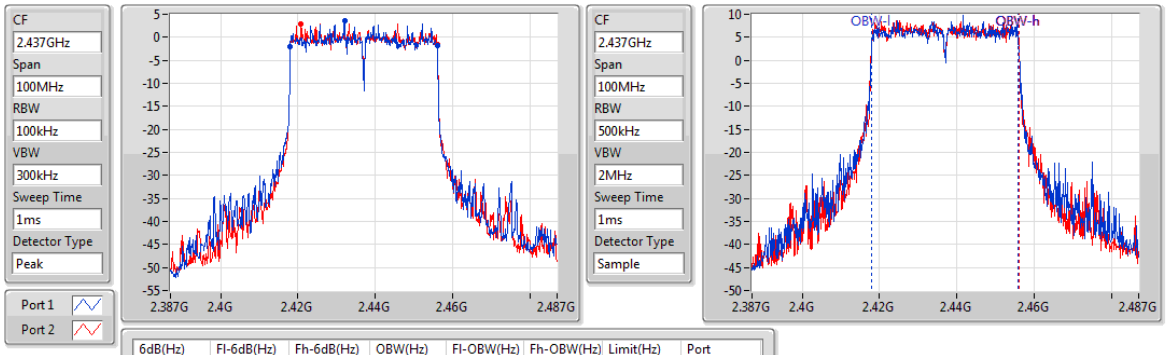
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.971M	2.403014G	2.440986G	37.771M	2.403042G	2.440813G	500k	1
37.971M	2.403014G	2.440986G	37.771M	2.403187G	2.440958G	500k	2

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

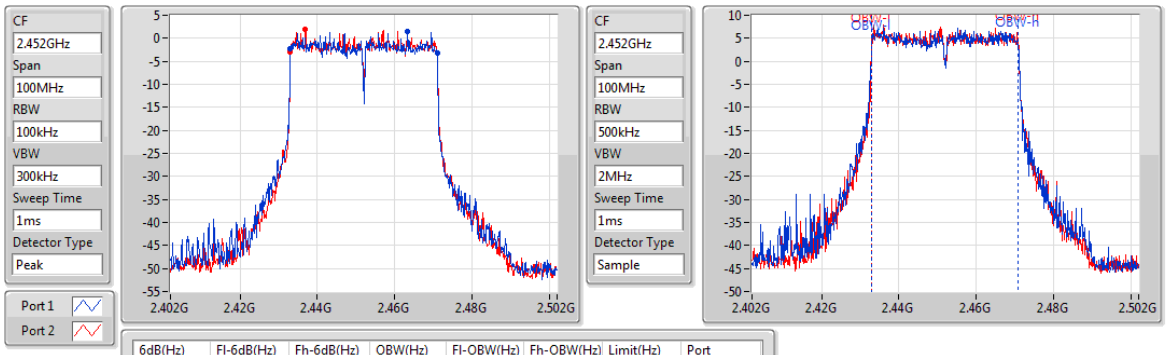
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.971M	2.418014G	2.455986G	37.771M	2.418042G	2.455813G	500k	1
37.971M	2.418014G	2.455986G	37.916M	2.418042G	2.455958G	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
37.971M	2.433014G	2.470986G	37.771M	2.433042G	2.470813G	500k	1
37.971M	2.433014G	2.470986G	37.771M	2.433042G	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	23.96	0.24889
802.11g_Nss1,(6Mbps)_2TX	23.77	0.23823
802.11ax HEW20_Nss1,(MCS0)_2TX	23.55	0.22646
802.11ax HEW40_Nss1,(MCS0)_2TX	21.00	0.12589

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	20.92	20.98	23.96	30.00	23.96	36.00
2437MHz	Pass	0.00	20.91	20.96	23.95	30.00	23.95	36.00
2462MHz	Pass	0.00	19.88	19.96	22.93	30.00	22.93	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	0.00	20.41	20.48	23.46	30.00	23.46	36.00
2437MHz	Pass	0.00	20.83	20.68	23.77	30.00	23.77	36.00
2462MHz	Pass	0.00	19.74	19.79	22.78	30.00	22.78	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	0.00	17.84	17.82	20.84	30.00	20.84	36.00
2437MHz	Pass	0.00	20.72	20.36	23.55	30.00	23.55	36.00
2462MHz	Pass	0.00	17.22	17.18	20.21	30.00	20.21	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	0.00	17.56	17.48	20.53	30.00	20.53	36.00
2437MHz	Pass	0.00	18.01	17.96	21.00	30.00	21.00	36.00
2452MHz	Pass	0.00	16.63	16.61	19.63	30.00	19.63	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	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	20.54	0.11324
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	17.99	0.06295

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.01	14.83	14.81	17.83	30.00	20.84	36.00
2437MHz	Pass	3.01	17.71	17.35	20.54	30.00	23.55	36.00
2462MHz	Pass	3.01	14.21	14.17	17.20	30.00	20.21	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.01	14.55	14.47	17.52	30.00	20.53	36.00
2437MHz	Pass	3.01	15.00	14.95	17.99	30.00	21.00	36.00
2452MHz	Pass	3.01	13.62	13.60	16.62	30.00	19.63	36.00

DG = Directional Gain = 0 dBi + 10*log(2/1) = 3 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.

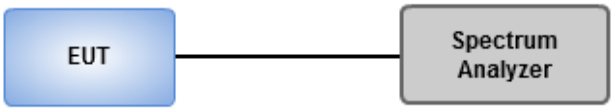
2 Set the sweep time to: ≥ 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	2.68
802.11g_Nss1,(6Mbps)_2TX	-1.51
802.11ax HEW20_Nss1,(MCS0)_2TX	-2.26
802.11ax HEW40_Nss1,(MCS0)_2TX	-8.56

RBW=30 kHz

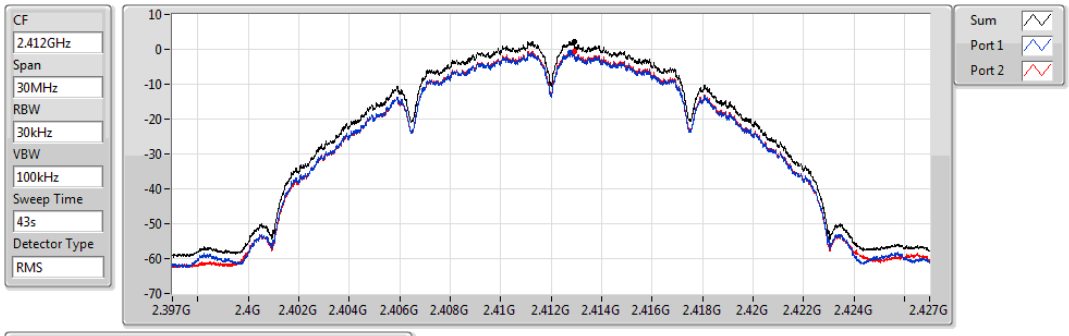
Result

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	-0.95	-0.47	2.21	8.00
2437MHz	Pass	3.01	-0.44	-0.17	2.68	8.00
2462MHz	Pass	3.01	-1.54	-1.38	1.55	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-5.07	-4.84	-2.10	8.00
2437MHz	Pass	3.01	-4.43	-4.29	-1.51	8.00
2462MHz	Pass	3.01	-5.31	-5.50	-2.52	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-7.92	-7.77	-4.83	8.00
2437MHz	Pass	3.01	-5.12	-5.24	-2.26	8.00
2462MHz	Pass	3.01	-8.41	-8.73	-5.56	8.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.01	-11.66	-11.77	-8.70	8.00
2437MHz	Pass	3.01	-11.70	-11.40	-8.56	8.00
2452MHz	Pass	3.01	-12.97	-13.01	-10.06	8.00

DG = Directional Gain = 0 dBi + 10*log(2/1) = 3 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**

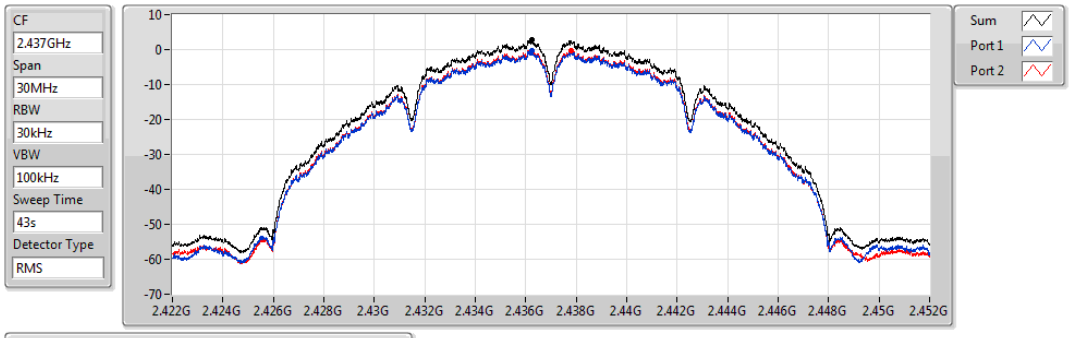
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.21	2.21	-0.95	-0.47

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

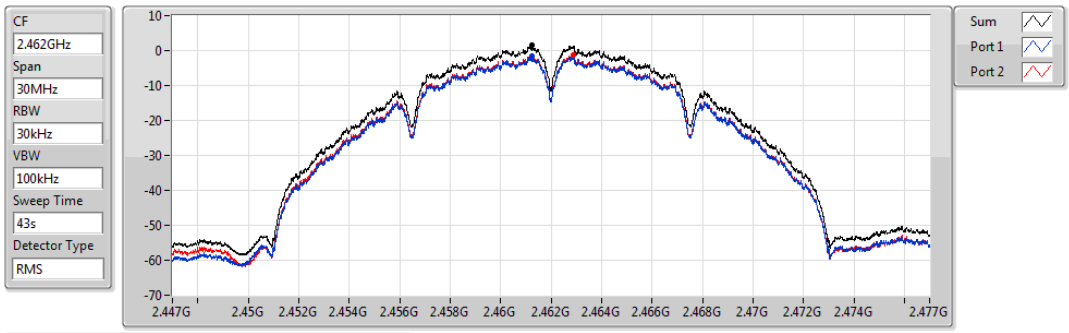
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.68	2.68	-0.44	-0.17

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

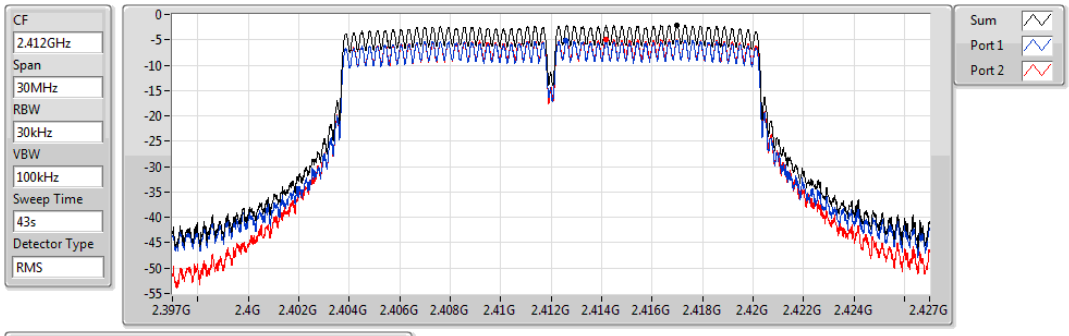
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.55	1.55	-1.54	-1.38

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

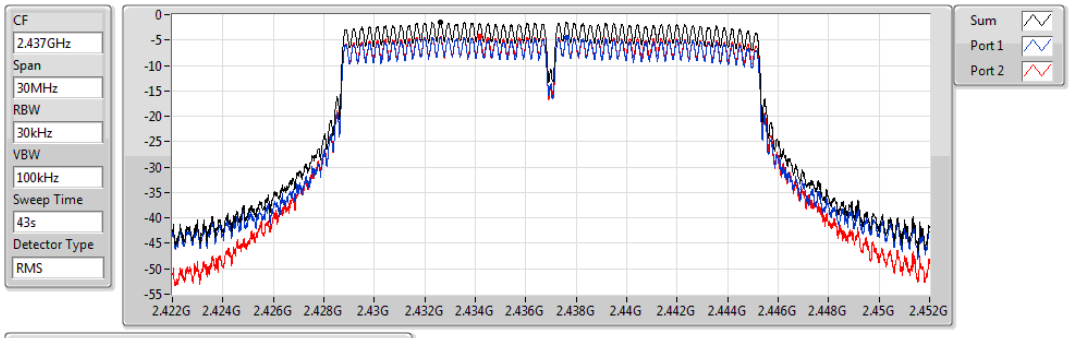
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.10	-2.10	-5.07	-4.84

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

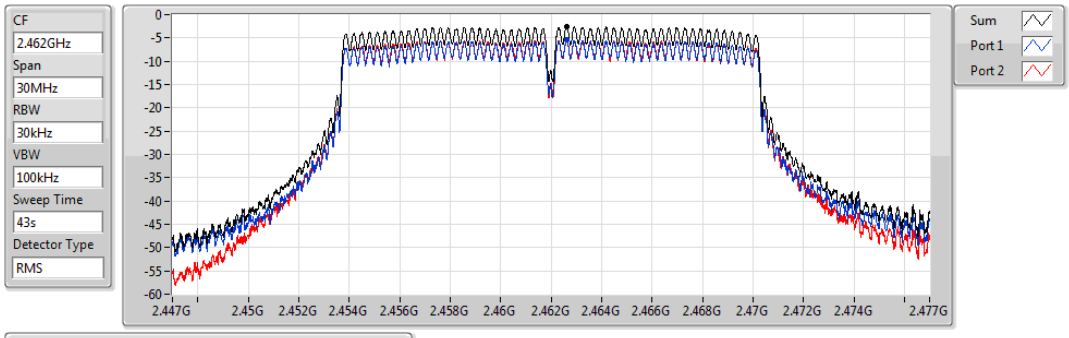
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.51	-1.51	-4.43	-4.29

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

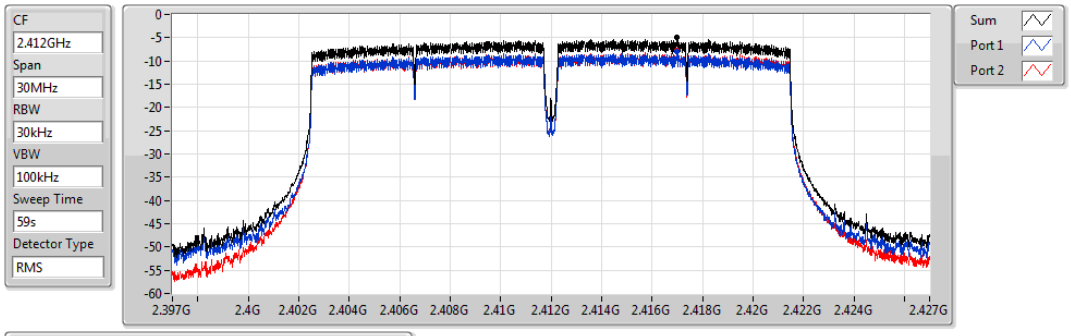
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.52	-2.52	-5.31	-5.50

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

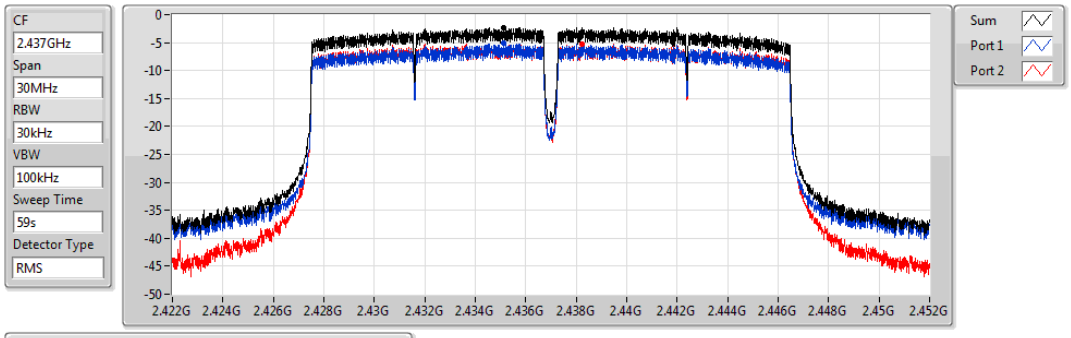
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.83	-4.83	-7.92	-7.77

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

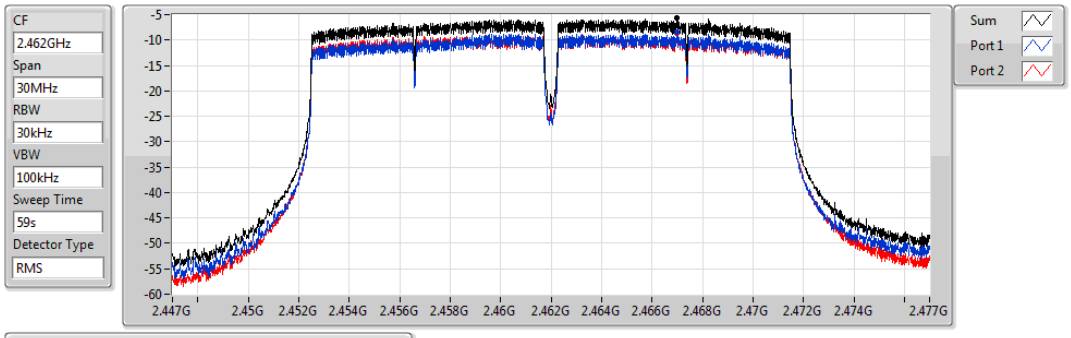
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.26	-2.26	-5.12	-5.24

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

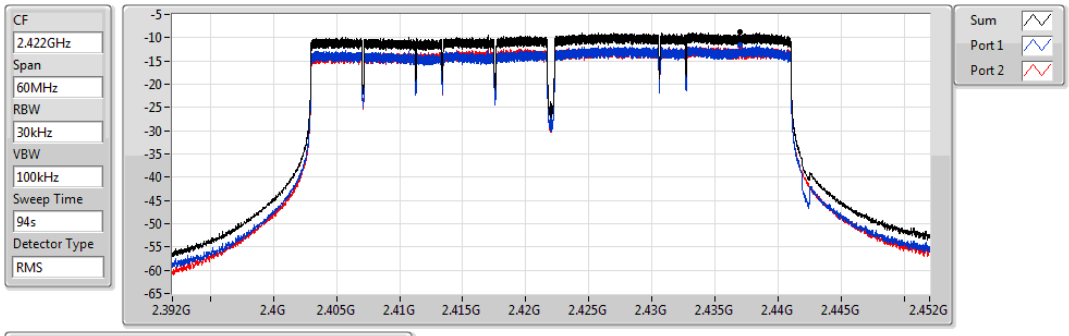
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.56	-5.56	-8.41	-8.73

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

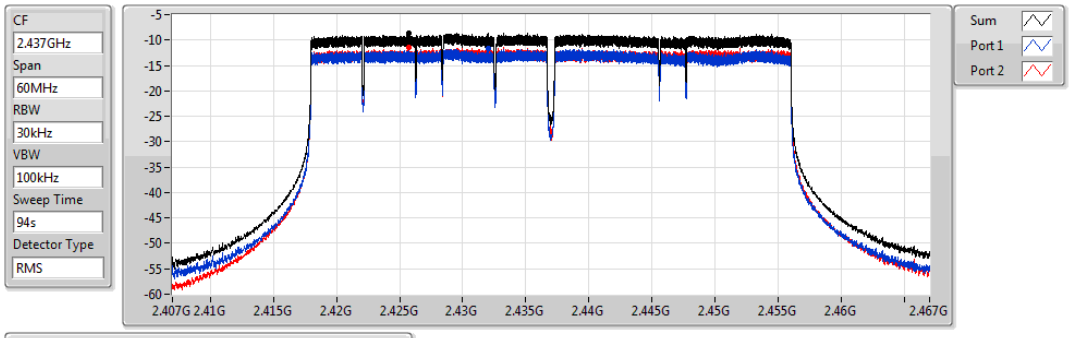
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.70	-8.70	-11.66	-11.77

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

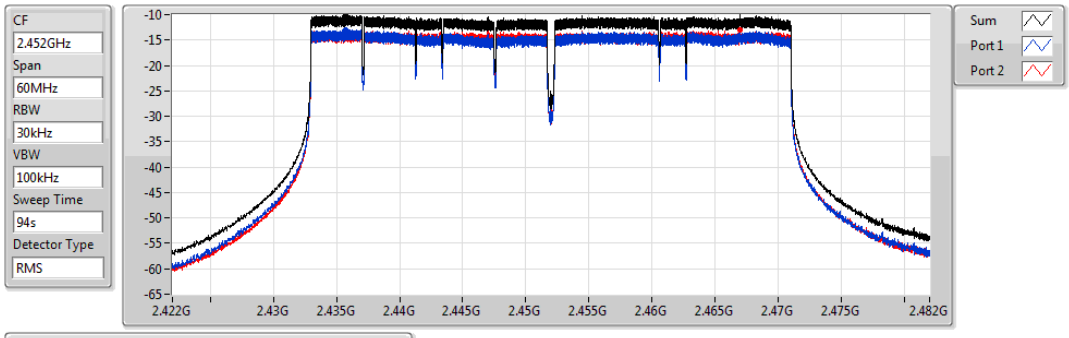
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.56	-8.56	-11.70	-11.40

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

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.06	-10.06	-12.97	-13.01

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

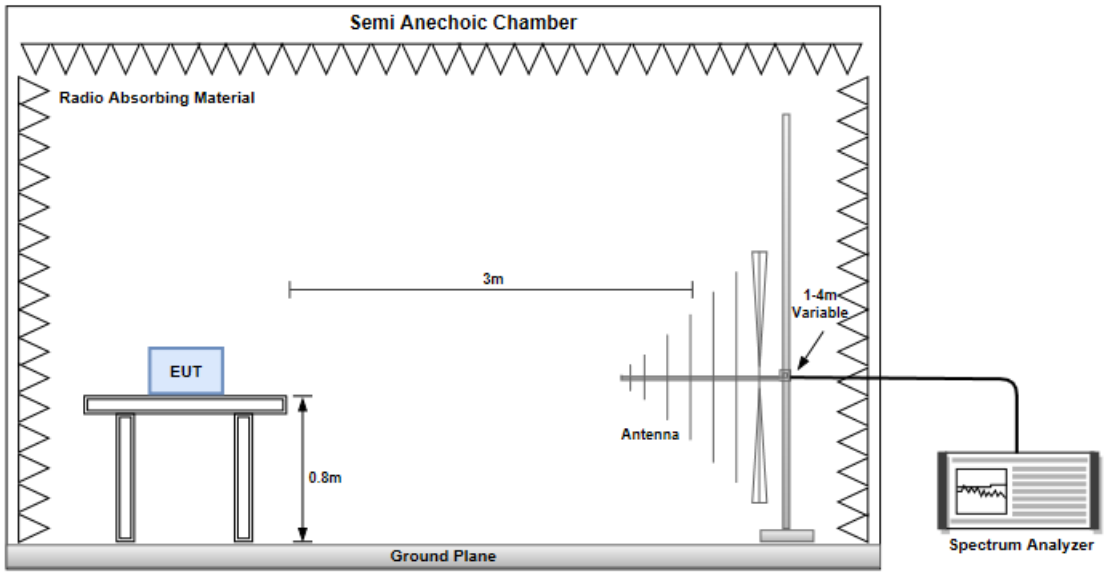
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

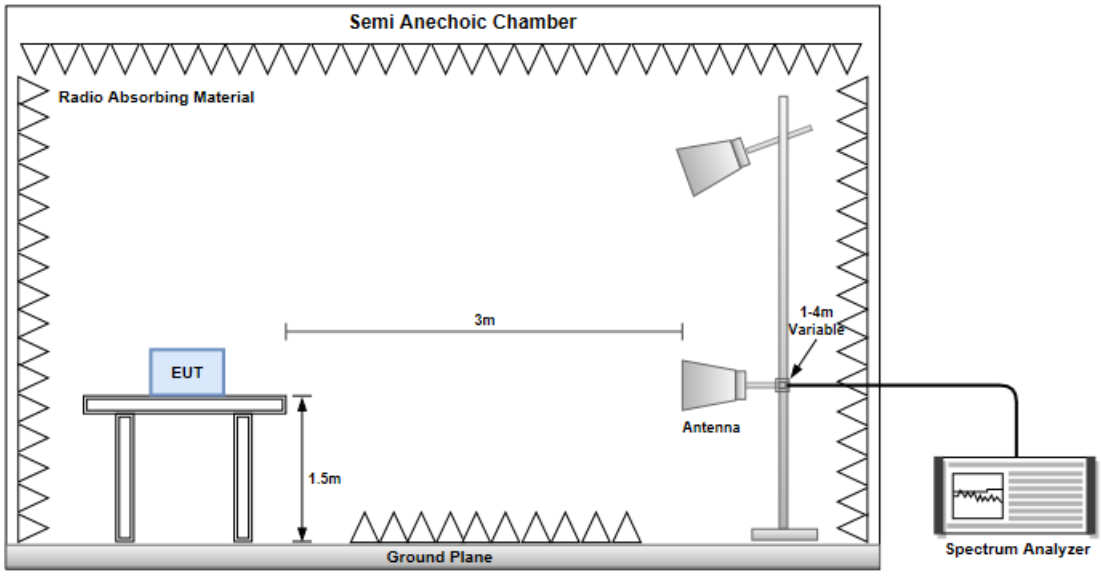
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

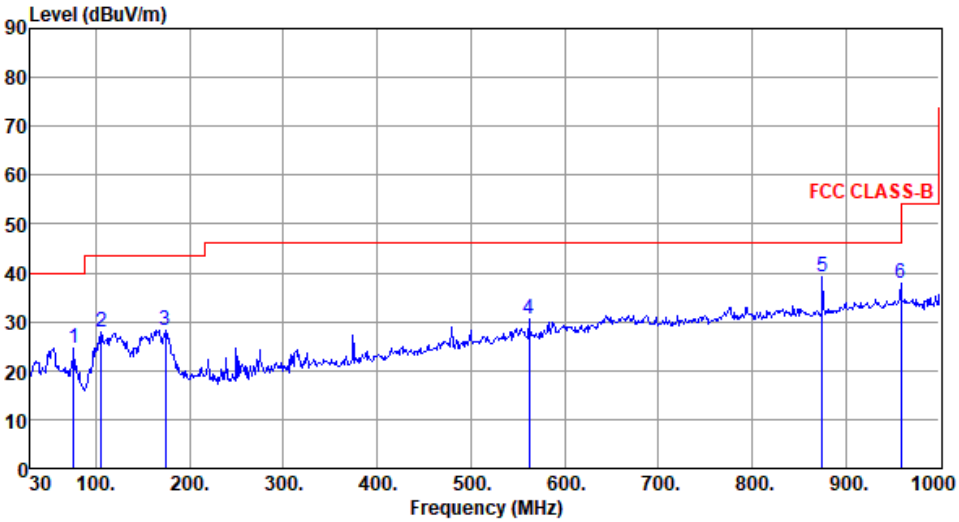


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

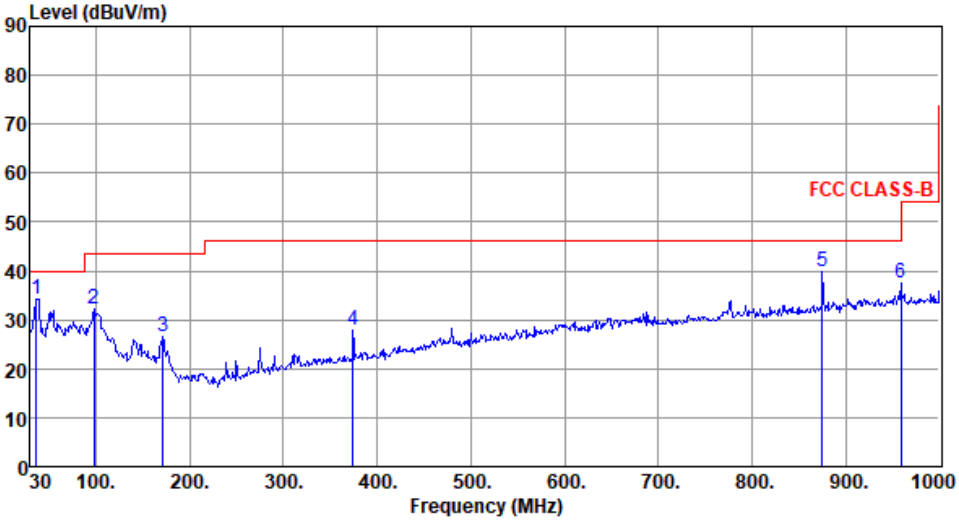
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	76.56	24.57	40.00	-15.43	36.79	-12.22	Peak	---	---
2	105.66	27.78	43.50	-15.72	39.86	-12.08	Peak	---	---
3	174.53	28.36	43.50	-15.14	37.59	-9.23	Peak	---	---
4	562.53	30.56	46.00	-15.44	31.98	-1.42	Peak	---	---
5	874.87	39.03	46.00	-6.97	34.47	4.56	Peak	---	---
6	959.26	37.92	46.00	-8.08	31.75	6.17	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.

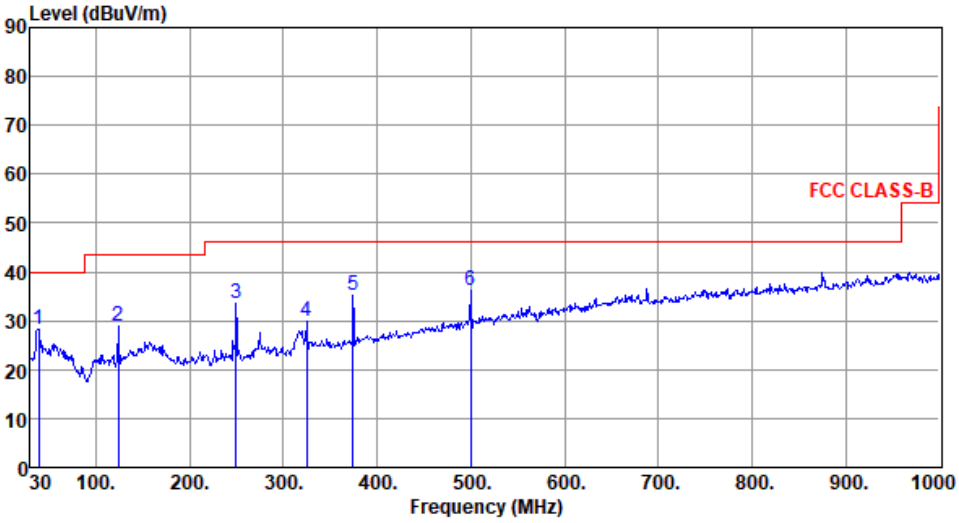
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	36.79	34.14	40.00	-5.86	43.28	-9.14	Peak	---	---
2	97.90	32.06	43.50	-11.44	45.42	-13.36	Peak	---	---
3	171.62	26.42	43.50	-17.08	35.37	-8.95	Peak	---	---
4	374.35	28.01	46.00	-17.99	33.76	-5.75	Peak	---	---
5	874.87	39.97	46.00	-6.03	35.41	4.56	Peak	---	---
6	959.26	37.65	46.00	-8.35	31.48	6.17	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.

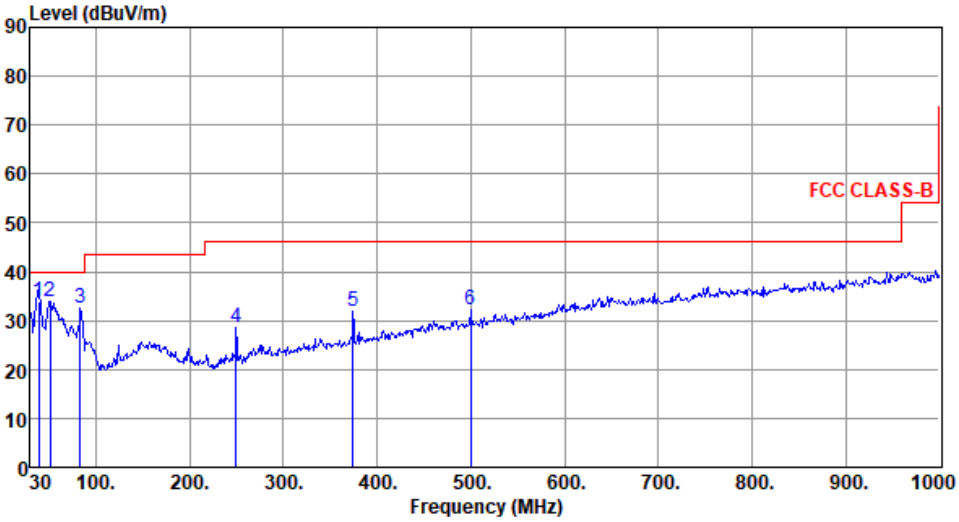
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Horizontal	**Test Configuration**	2



	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	28.11	40.00	-11.89	36.94	-8.83	Peak	---	---
2	124.09	28.82	43.50	-14.68	39.11	-10.29	Peak	---	---
3	249.22	33.40	46.00	-12.60	43.15	-9.75	Peak	---	---
4	324.88	29.92	46.00	-16.08	36.91	-6.99	Peak	---	---
5	374.35	35.22	46.00	-10.78	40.97	-5.75	Peak	---	---
6	499.48	36.18	46.00	-9.82	38.82	-2.64	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)**	2412
Polarization	Vertical	**Test Configuration**	2

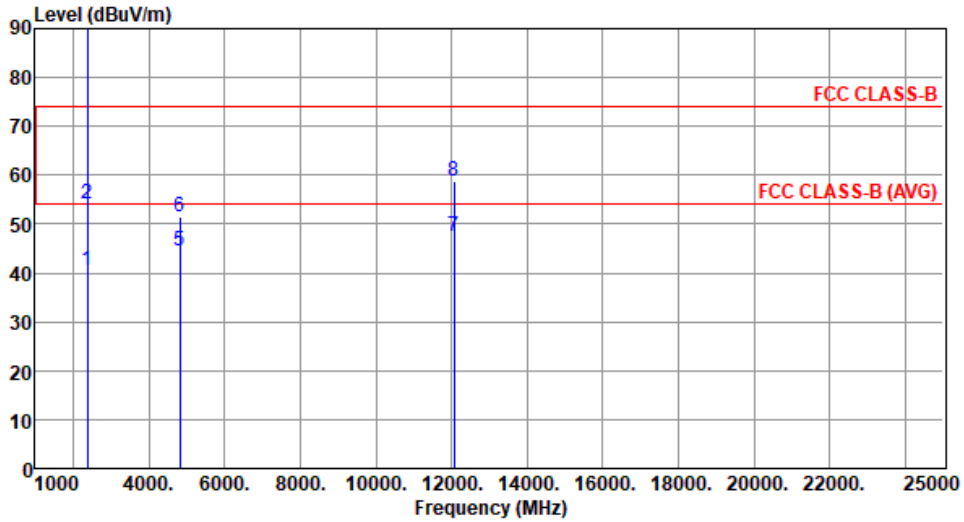


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	38.76	34.04	40.00	-5.96	42.86	-8.82	QP	100	346
2	51.34	33.80	40.00	-6.20	42.26	-8.46	Peak	---	---
3	83.35	32.42	40.00	-7.58	46.21	-13.79	Peak	---	---
4	249.22	28.46	46.00	-17.54	38.21	-9.75	Peak	---	---
5	374.35	31.96	46.00	-14.04	37.71	-5.75	Peak	---	---
6	499.48	32.13	46.00	-13.87	34.77	-2.64	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

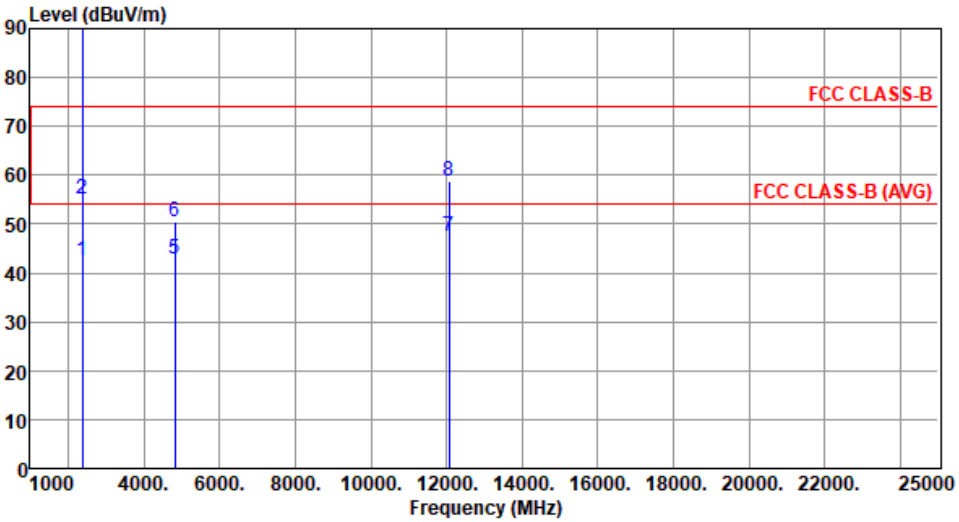
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	40.58	54.00	-13.42	40.34	0.24	Average	233	334
2		2390.00	54.16	74.00	-19.84	53.92	0.24	Peak	233	334
3	*	2412.00	106.08			105.85	0.23	Average	233	334
4	*	2412.00	108.19			107.96	0.23	Peak	233	334
5		4824.00	44.63	54.00	-9.37	38.13	6.50	Average	122	338
6		4824.00	51.47	74.00	-22.53	44.97	6.50	Peak	122	338
7		12060.00	47.51	54.00	-6.49	31.27	16.24	Average	100	50
8		12060.00	58.73	74.00	-15.27	42.49	16.24	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

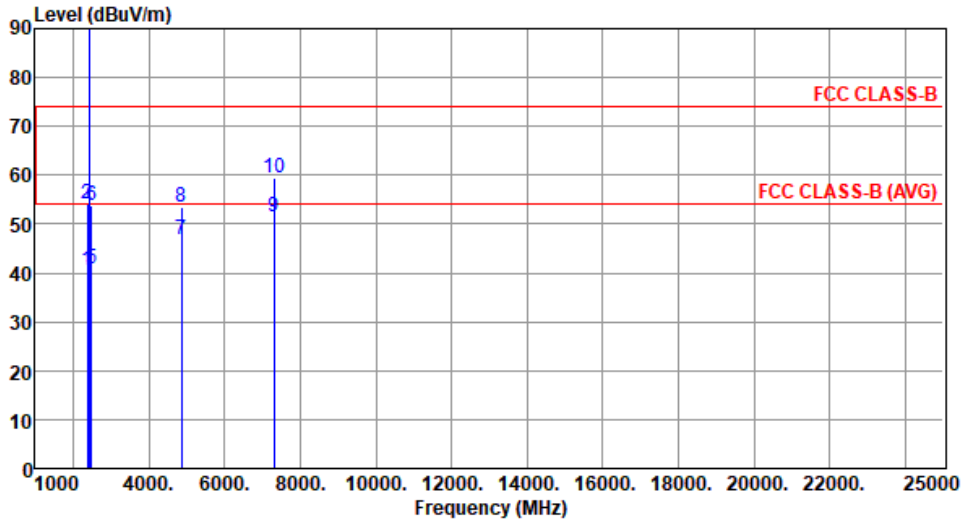
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical	Test Configuration	1



		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	42.45	54.00	-11.55	42.21	0.24	Average	168	334
2		2390.00	55.28	74.00	-18.72	55.04	0.24	Peak	168	334
3	*	2412.00	114.59			114.36	0.23	Average	168	334
4	*	2412.00	116.85			116.62	0.23	Peak	168	334
5		4824.00	42.86	54.00	-11.14	36.36	6.50	Average	100	338
6		4824.00	50.39	74.00	-23.61	43.89	6.50	Peak	100	338
7		12060.00	47.36	54.00	-6.64	31.12	16.24	Average	100	20
8		12060.00	58.83	74.00	-15.17	42.59	16.24	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

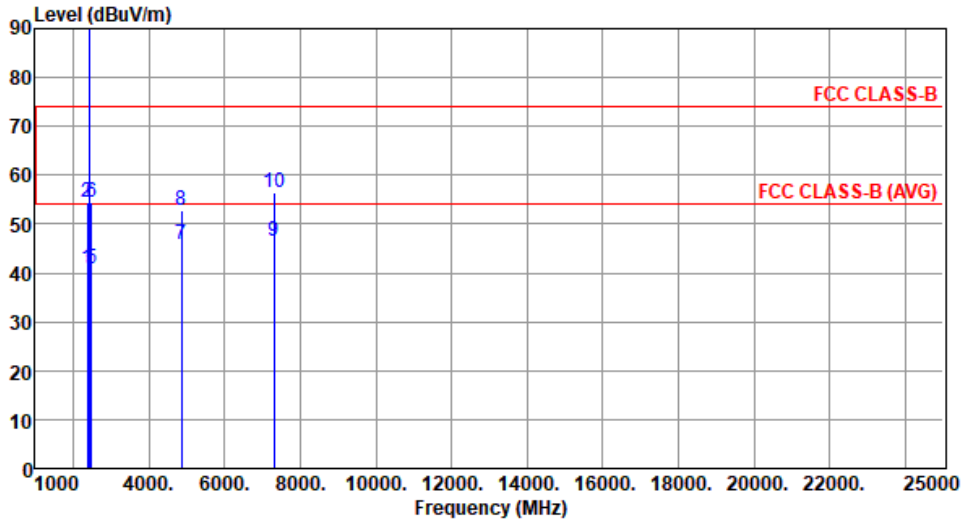
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	40.56	54.00	-13.44	40.32	0.24	Average	231	332
2		2390.00	54.08	74.00	-19.92	53.84	0.24	Peak	231	332
3	*	2437.00	106.17			105.91	0.26	Average	231	332
4	*	2437.00	108.24			107.98	0.26	Peak	231	332
5		2483.50	40.71	54.00	-13.29	40.46	0.25	Average	231	332
6		2483.50	53.95	74.00	-20.05	53.70	0.25	Peak	231	332
7		4874.00	46.79	54.00	-7.21	40.31	6.48	Average	100	338
8		4874.00	53.43	74.00	-20.57	46.95	6.48	Peak	100	338
9		7311.00	51.59	54.00	-2.41	39.83	11.76	Average	145	359
10		7311.00	59.35	74.00	-14.65	47.59	11.76	Peak	145	359

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

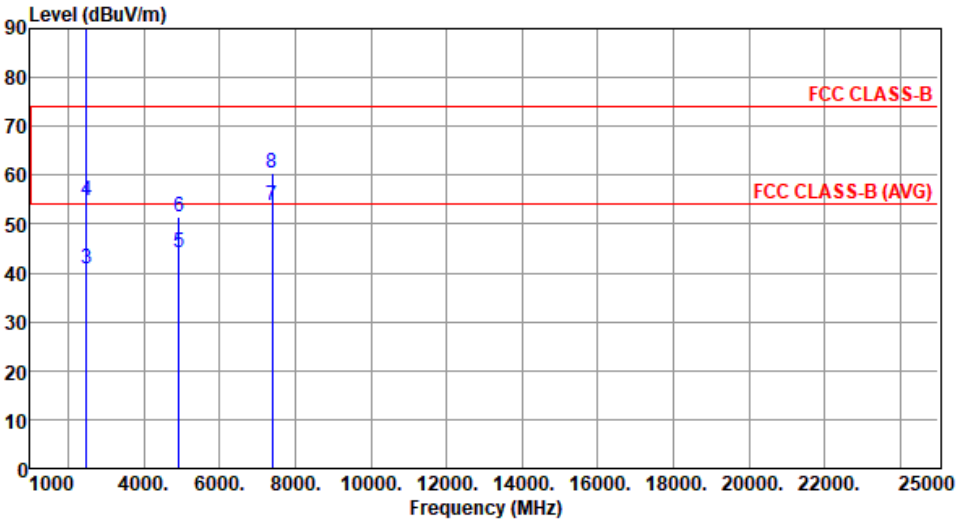
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical	Test Configuration	1



		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	40.83	54.00	-13.17	40.59	0.24	Average	191	350
2		2390.00	54.40	74.00	-19.60	54.16	0.24	Peak	191	350
3	*	2437.00	114.82			114.56	0.26	Average	191	350
4	*	2437.00	117.26			117.00	0.26	Peak	191	350
5		2483.50	40.83	54.00	-13.17	40.58	0.25	Average	191	350
6		2483.50	54.52	74.00	-19.48	54.27	0.25	Peak	191	350
7		4874.00	45.96	54.00	-8.04	39.48	6.48	Average	100	331
8		4874.00	52.96	74.00	-21.04	46.48	6.48	Peak	100	331
9		7311.00	46.36	54.00	-7.64	34.60	11.76	Average	100	42
10		7311.00	56.46	74.00	-17.54	44.70	11.76	Peak	100	42

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

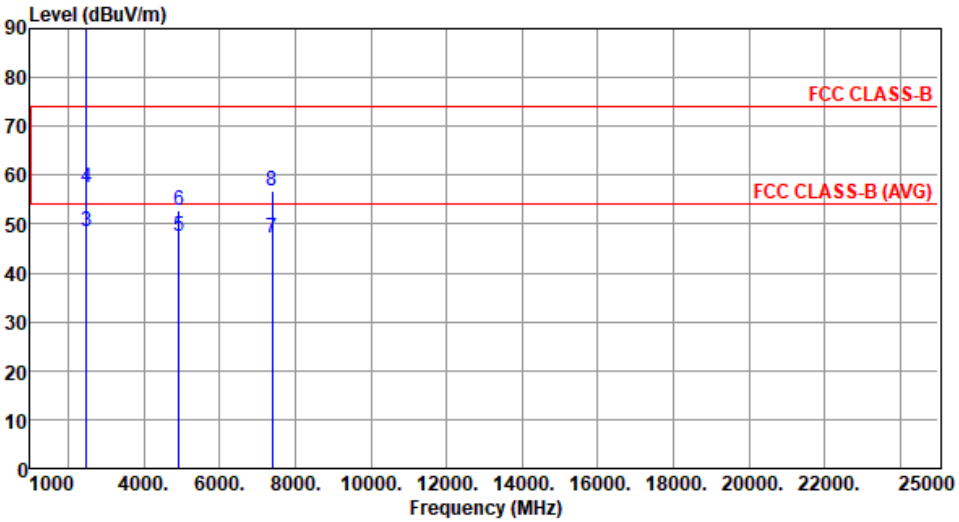
Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal	Test Configuration	1



		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	106.21			105.94	0.27	Average	233	335
2	*	2462.00	108.35			108.08	0.27	Peak	233	335
3		2483.50	40.95	54.00	-13.05	40.70	0.25	Average	233	335
4		2483.50	54.68	74.00	-19.32	54.43	0.25	Peak	233	335
5		4924.00	44.11	54.00	-9.89	37.60	6.51	Average	105	343
6		4924.00	51.42	74.00	-22.58	44.91	6.51	Peak	105	343
7		7386.00	53.71	54.00	-0.29	41.90	11.81	Average	158	355
8		7386.00	60.32	74.00	-13.68	48.51	11.81	Peak	158	355

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	**Test Configuration**	1

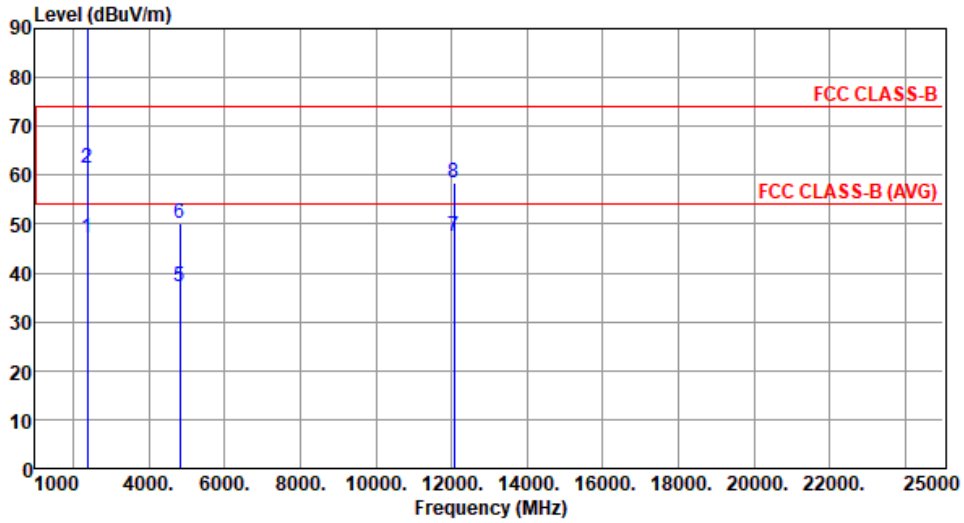


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	114.48			114.21	0.27	Average	207	346
2	*	2462.00	116.52			116.25	0.27	Peak	207	346
3		2483.50	48.47	54.00	-5.53	48.22	0.25	Average	207	346
4		2483.50	57.52	74.00	-16.48	57.27	0.25	Peak	207	346
5		4924.00	47.62	54.00	-6.38	41.11	6.51	Average	100	333
6		4924.00	52.94	74.00	-21.06	46.43	6.51	Peak	100	333
7		7386.00	47.21	54.00	-6.79	35.40	11.81	Average	102	47
8		7386.00	56.76	74.00	-17.24	44.95	11.81	Peak	102	47

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

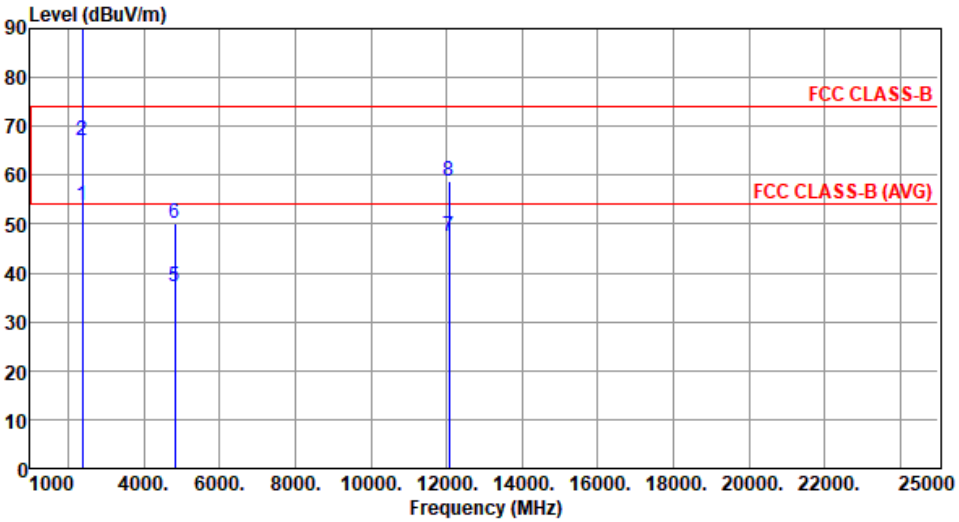
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	47.03	54.00	-6.97	46.79	0.24	Average	158	329
2		2390.00	61.28	74.00	-12.72	61.04	0.24	Peak	158	329
3	*	2412.00	100.35			100.12	0.23	Average	158	329
4	*	2412.00	110.94			110.71	0.23	Peak	158	329
5		4824.00	37.15	54.00	-16.85	30.65	6.50	Average	100	349
6		4824.00	50.24	74.00	-23.76	43.74	6.50	Peak	100	349
7		12060.00	47.46	54.00	-6.54	31.22	16.24	Average	100	42
8		12060.00	58.61	74.00	-15.39	42.37	16.24	Peak	100	42

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

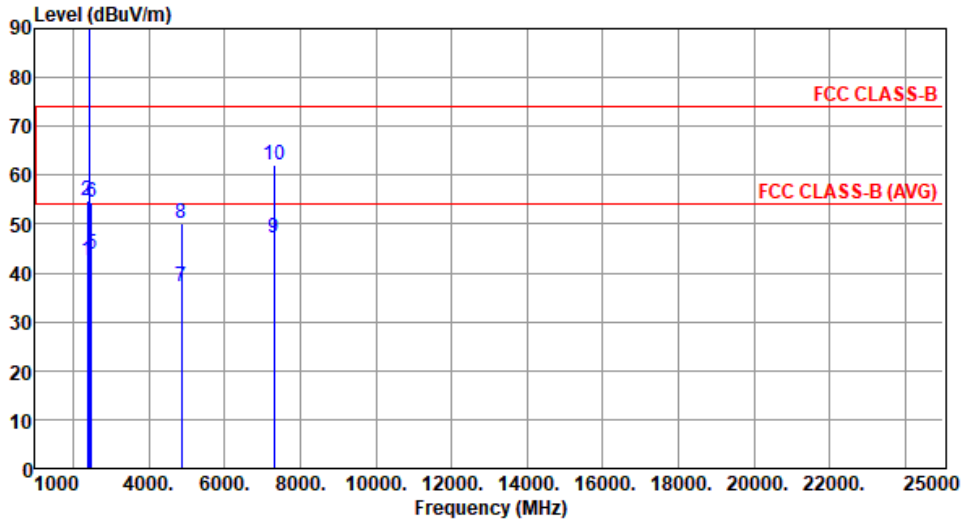
Modulation	11g	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



		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	53.77	54.00	-0.23	53.53	0.24	Average	220	13
2		2390.00	67.22	74.00	-6.78	66.98	0.24	Peak	220	13
3	*	2412.00	107.78			107.55	0.23	Average	220	13
4	*	2412.00	118.09			117.86	0.23	Peak	220	13
5		4824.00	37.14	54.00	-16.86	30.64	6.50	Average	100	335
6		4824.00	50.09	74.00	-23.91	43.59	6.50	Peak	100	335
7		12060.00	47.45	54.00	-6.55	31.21	16.24	Average	100	38
8		12060.00	58.62	74.00	-15.38	42.38	16.24	Peak	100	38

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

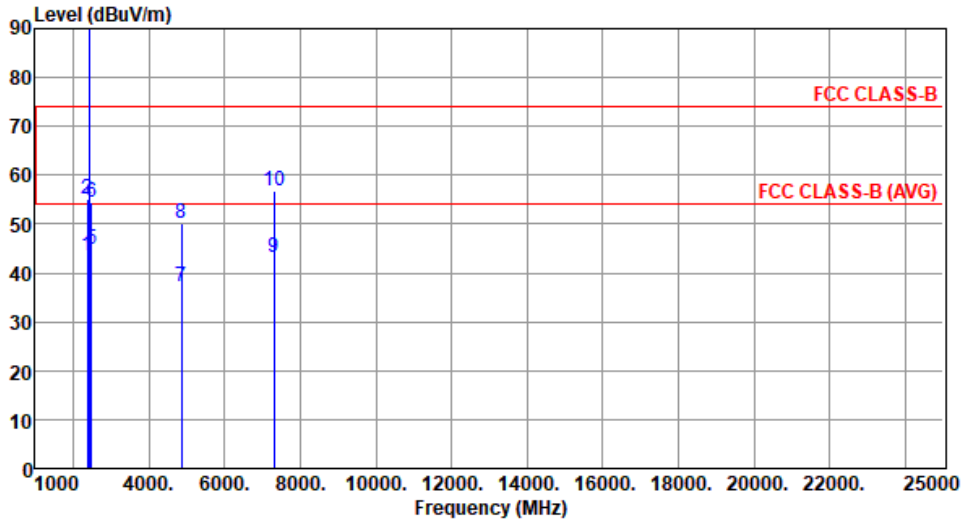
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	42.41	54.00	-11.59	42.17	0.24	Average	158	330
2		2390.00	54.96	74.00	-19.04	54.72	0.24	Peak	158	330
3	*	2437.00	100.52			100.26	0.26	Average	158	330
4	*	2437.00	111.02			110.76	0.26	Peak	158	330
5		2483.50	43.92	54.00	-10.08	43.67	0.25	Average	158	330
6		2483.50	54.34	74.00	-19.66	54.09	0.25	Peak	158	330
7		4874.00	37.26	54.00	-16.74	30.78	6.48	Average	100	345
8		4874.00	50.26	74.00	-23.74	43.78	6.48	Peak	100	345
9		7311.00	47.25	54.00	-6.75	35.49	11.76	Average	175	357
10		7311.00	61.98	74.00	-12.02	50.22	11.76	Peak	175	357

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

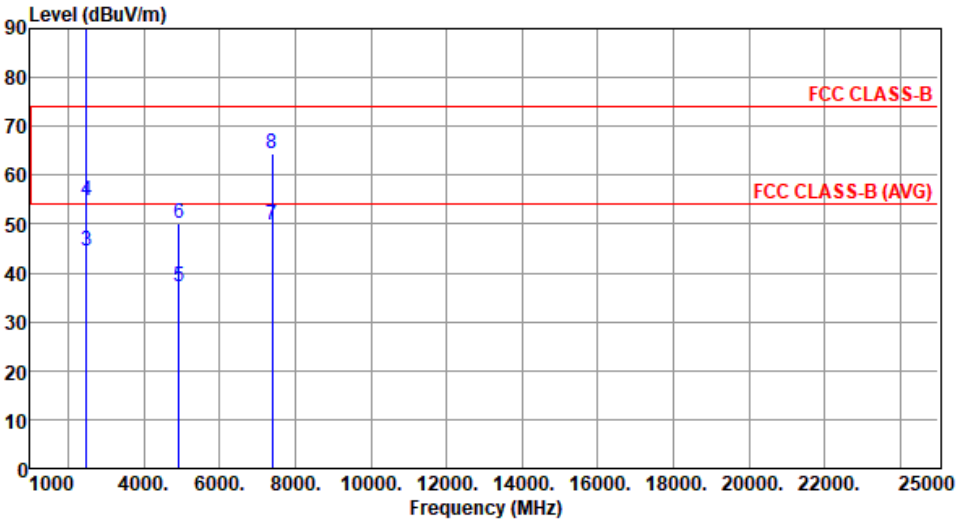
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical	Test Configuration	1



		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	43.50	54.00	-10.50	43.26	0.24	Average	209	11
2		2390.00	55.04	74.00	-18.96	54.80	0.24	Peak	209	11
3	*	2437.00	108.66			108.40	0.26	Average	209	11
4	*	2437.00	118.62			118.36	0.26	Peak	209	11
5		2483.50	44.68	54.00	-9.32	44.43	0.25	Average	209	11
6		2483.50	54.55	74.00	-19.45	54.30	0.25	Peak	209	11
7		4874.00	37.04	54.00	-16.96	30.56	6.48	Average	100	339
8		4874.00	50.03	74.00	-23.97	43.55	6.48	Peak	100	339
9		7311.00	43.19	54.00	-10.81	31.43	11.76	Average	100	40
10		7311.00	56.84	74.00	-17.16	45.08	11.76	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

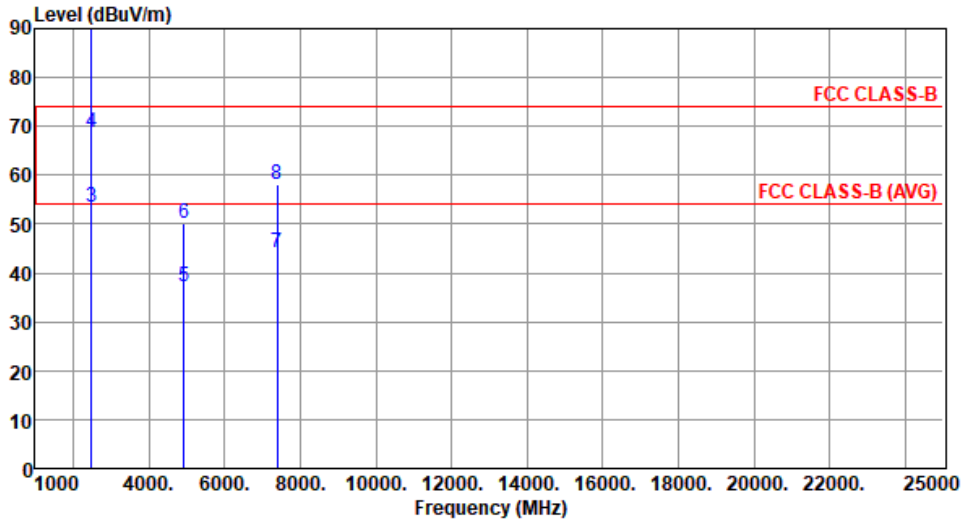
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal	Test Configuration	1



		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	99.61			99.34	0.27	Average	156	334
2	*	2462.00	110.08			109.81	0.27	Peak	156	334
3		2483.50	44.52	54.00	-9.48	44.27	0.25	Average	156	334
4		2483.50	54.68	74.00	-19.32	54.43	0.25	Peak	156	334
5		4924.00	37.15	54.00	-16.85	30.64	6.51	Average	100	346
6		4924.00	50.18	74.00	-23.82	43.67	6.51	Peak	100	346
7		7386.00	49.77	54.00	-4.23	37.96	11.81	Average	165	1
8		7386.00	64.32	74.00	-9.68	52.51	11.81	Peak	165	1

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	Test Configuration	1

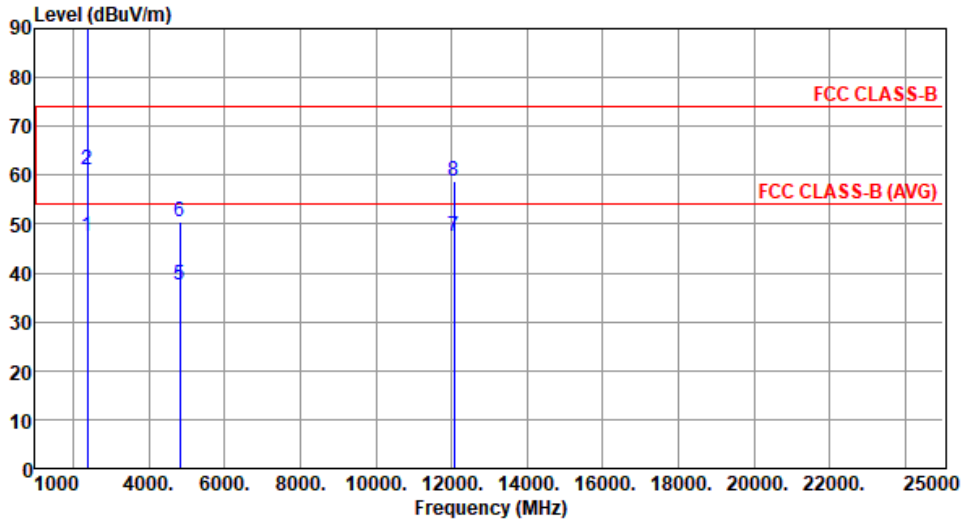


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	107.89			107.62	0.27	Average	209	14
2	*	2462.00	117.74			117.47	0.27	Peak	209	14
3		2483.50	53.51	54.00	-0.49	53.26	0.25	Average	209	14
4		2483.50	68.66	74.00	-5.34	68.41	0.25	Peak	209	14
5		4924.00	37.24	54.00	-16.76	30.73	6.51	Average	100	345
6		4924.00	50.22	74.00	-23.78	43.71	6.51	Peak	100	345
7		7386.00	44.25	54.00	-9.75	32.44	11.81	Average	100	48
8		7386.00	57.96	74.00	-16.04	46.15	11.81	Peak	100	48

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

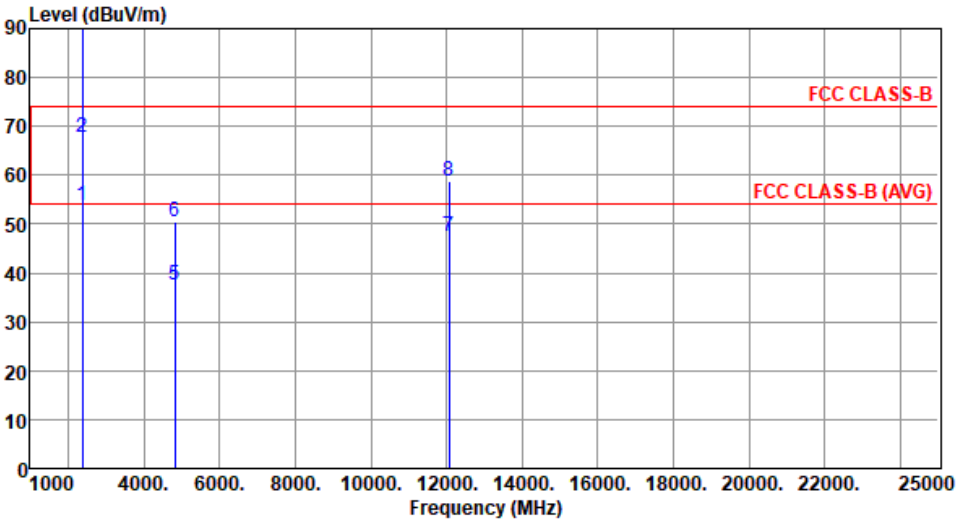
Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	47.46	54.00	-6.54	47.22	0.24	Average	156	331
2		2390.00	61.11	74.00	-12.89	60.87	0.24	Peak	156	331
3	*	2412.00	97.45			97.22	0.23	Average	156	331
4	*	2412.00	110.84			110.61	0.23	Peak	156	331
5		4824.00	37.42	54.00	-16.58	30.92	6.50	Average	100	55
6		4824.00	50.41	74.00	-23.59	43.91	6.50	Peak	100	55
7		12060.00	47.54	54.00	-6.46	31.30	16.24	Average	100	52
8		12060.00	58.76	74.00	-15.24	42.52	16.24	Peak	100	52

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

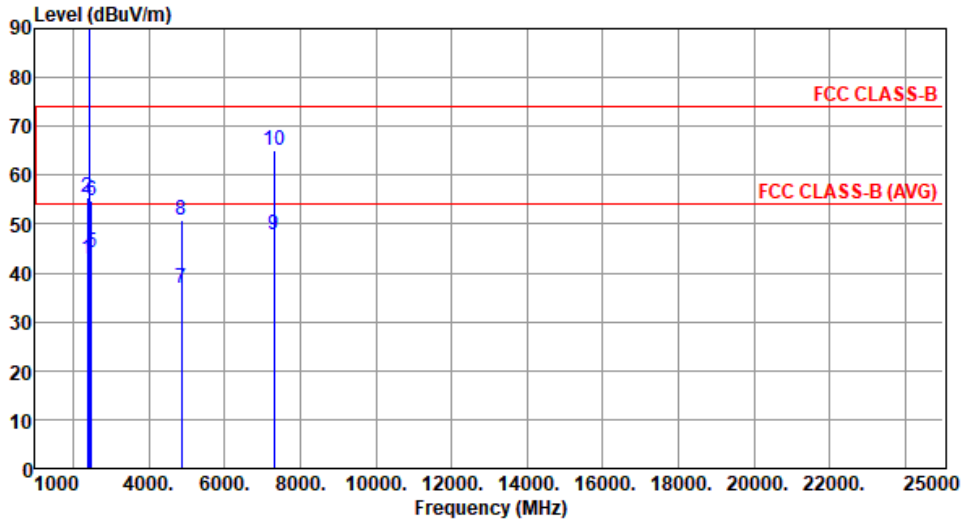
Modulation	ax HE20	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



		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	53.42	0.24	Average	226	18
2		2390.00	67.82	74.00	-6.18	67.58	0.24	Peak	226	18
3	*	2412.00	105.51			105.28	0.23	Average	226	18
4	*	2412.00	118.35			118.12	0.23	Peak	226	18
5		4824.00	37.46	54.00	-16.54	30.96	6.50	Average	106	344
6		4824.00	50.53	74.00	-23.47	44.03	6.50	Peak	106	344
7		12060.00	47.61	54.00	-6.39	31.37	16.24	Average	100	33
8		12060.00	58.89	74.00	-15.11	42.65	16.24	Peak	100	33

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

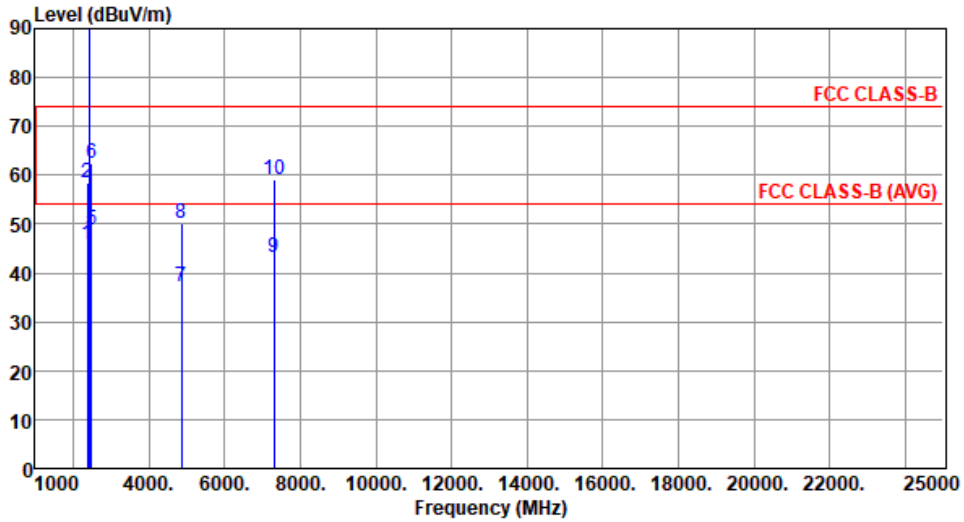
Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	42.69	54.00	-11.31	42.45	0.24	Average	158	336
2		2390.00	55.31	74.00	-18.69	55.07	0.24	Peak	158	336
3	*	2437.00	100.82			100.56	0.26	Average	158	336
4	*	2437.00	113.04			112.78	0.26	Peak	158	336
5		2483.50	44.29	54.00	-9.71	44.04	0.25	Average	158	336
6		2483.50	54.66	74.00	-19.34	54.41	0.25	Peak	158	336
7		4874.00	36.93	54.00	-17.07	30.45	6.48	Average	100	344
8		4874.00	50.94	74.00	-23.06	44.46	6.48	Peak	100	344
9		7311.00	47.81	54.00	-6.19	36.05	11.76	Average	176	358
10		7311.00	65.02	74.00	-8.98	53.26	11.76	Peak	176	358

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

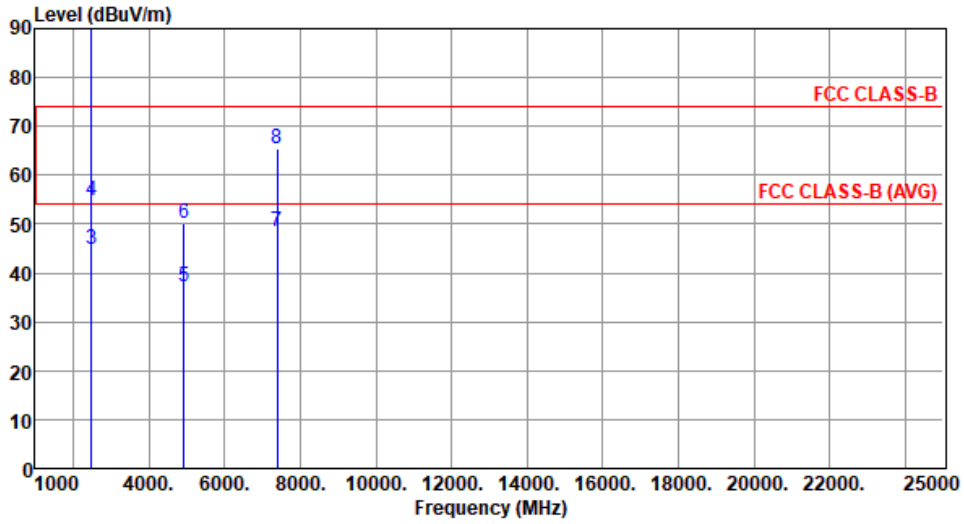
Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Vertical	Test Configuration	1



		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	45.82	54.00	-8.18	45.58	0.24	Average	238	7
2		2390.00	58.36	74.00	-15.64	58.12	0.24	Peak	238	7
3	*	2437.00	108.98			108.72	0.26	Average	238	7
4	*	2437.00	121.13			120.87	0.26	Peak	238	7
5		2483.50	48.92	54.00	-5.08	48.67	0.25	Average	238	7
6		2483.50	62.57	74.00	-11.43	62.32	0.25	Peak	238	7
7		4874.00	37.26	54.00	-16.74	30.78	6.48	Average	100	346
8		4874.00	50.15	74.00	-23.85	43.67	6.48	Peak	100	346
9		7311.00	43.22	54.00	-10.78	31.46	11.76	Average	100	51
10		7311.00	58.98	74.00	-15.02	47.22	11.76	Peak	100	51

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

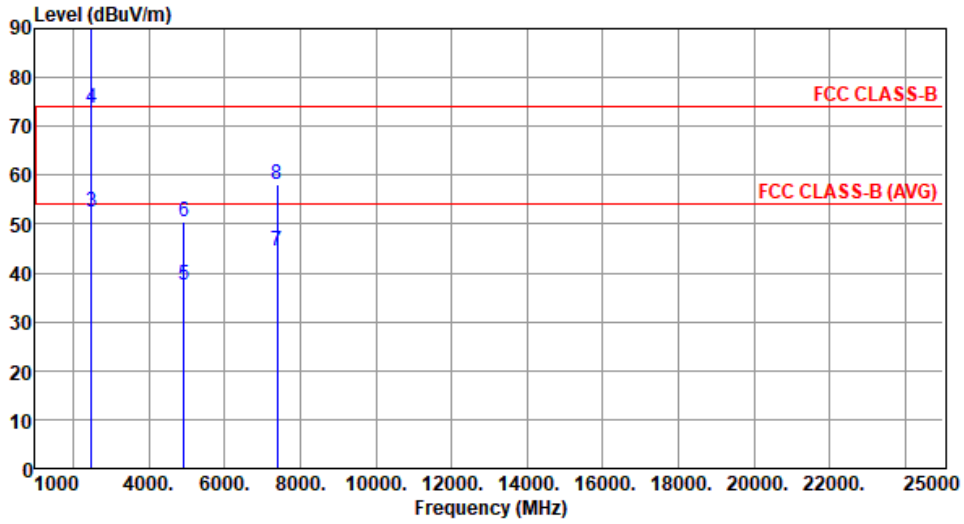
Modulation	ax HE20	**Test Freq. (MHz)**	2462
Polarization	Horizontal	**Test Configuration**	1



		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	97.41			97.14	0.27	Average	155	336
2	*	2462.00	110.46			110.19	0.27	Peak	155	336
3		2483.50	44.85	54.00	-9.15	44.60	0.25	Average	155	336
4		2483.50	54.96	74.00	-19.04	54.71	0.25	Peak	155	336
5		4924.00	37.26	54.00	-16.74	30.75	6.51	Average	100	338
6		4924.00	50.31	74.00	-23.69	43.80	6.51	Peak	100	338
7		7386.00	48.42	54.00	-5.58	36.61	11.81	Average	170	0
8		7386.00	65.42	74.00	-8.58	53.61	11.81	Peak	170	0

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	**Test Configuration**	1

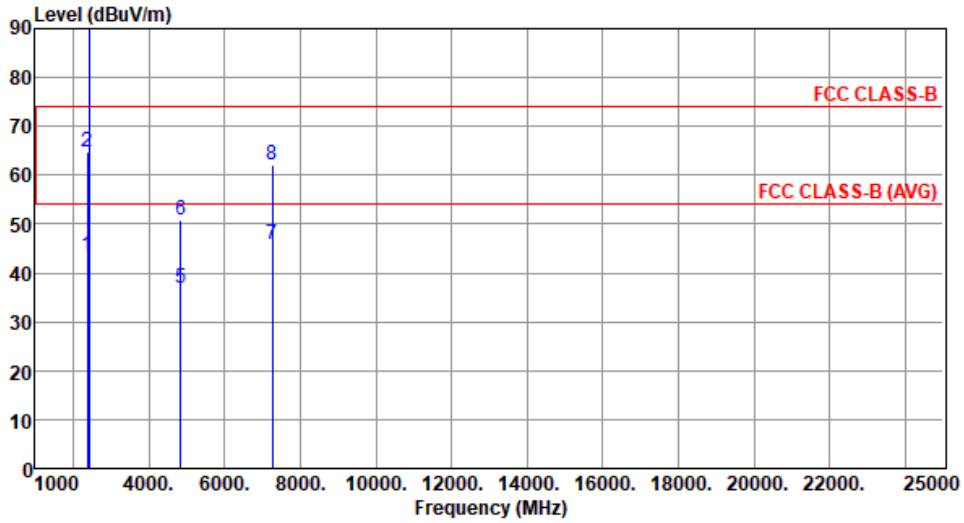


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	105.43			105.16	0.27	Average	271	5
2	*	2462.00	118.48			118.21	0.27	Peak	271	5
3		2483.50	52.51	54.00	-1.49	52.26	0.25	Average	271	5
4		2483.50	73.71	74.00	-0.29	73.46	0.25	Peak	271	5
5		4924.00	37.45	54.00	-16.55	30.94	6.51	Average	100	28
6		4924.00	50.36	74.00	-23.64	43.85	6.51	Peak	100	28
7		7386.00	44.48	54.00	-9.52	32.67	11.81	Average	100	49
8		7386.00	58.14	74.00	-15.86	46.33	11.81	Peak	100	49

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

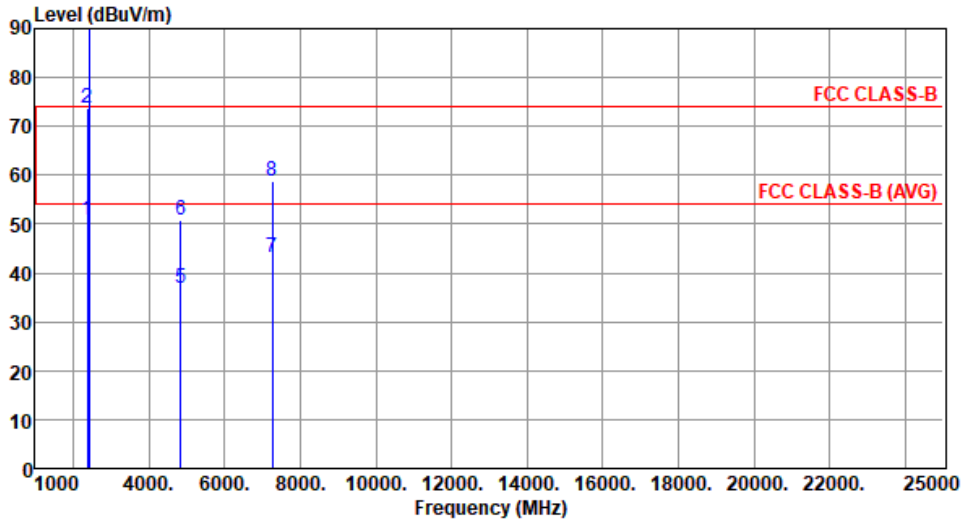
Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Horizontal	Test Configuration	1



		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	43.51	54.00	-10.49	43.27	0.24	Average	155	324
2		2390.00	64.62	74.00	-9.38	64.38	0.24	Peak	155	324
3	*	2422.00	94.51			94.26	0.25	Average	155	324
4	*	2422.00	106.75			106.50	0.25	Peak	155	324
5		4844.00	36.91	54.00	-17.09	30.36	6.55	Average	100	42
6		4844.00	50.88	74.00	-23.12	44.33	6.55	Peak	100	42
7		7266.00	45.68	54.00	-8.32	34.07	11.61	Average	100	331
8		7266.00	61.95	74.00	-12.05	50.34	11.61	Peak	100	331

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

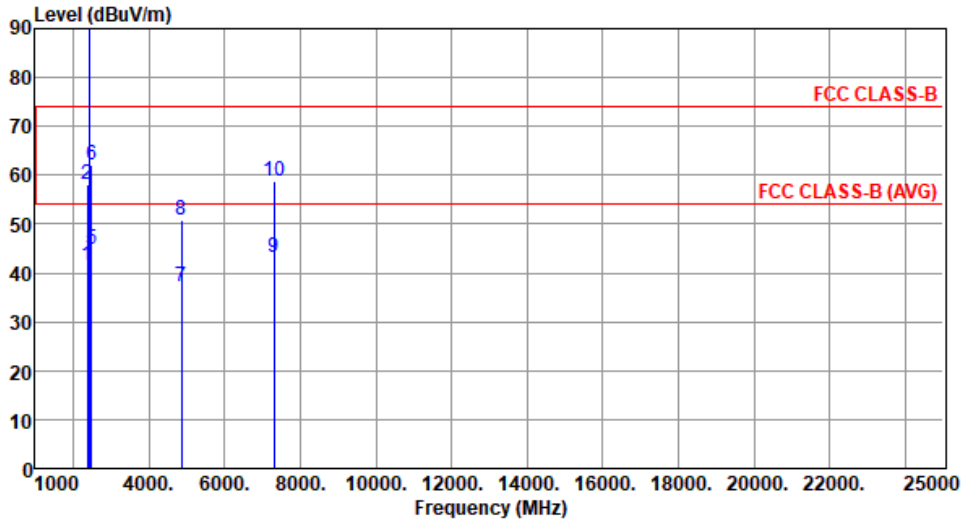
Modulation	ax HE40	**Test Freq. (MHz)**	2422
Polarization	Vertical	**Test Configuration**	1



		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	50.88	54.00	-3.12	50.64	0.24	Average	222	5
2		2390.00	73.63	74.00	-0.37	73.39	0.24	Peak	222	5
3	*	2422.00	102.49			102.24	0.25	Average	222	5
4	*	2422.00	114.63			114.38	0.25	Peak	222	5
5		4844.00	37.02	54.00	-16.98	30.47	6.55	Average	100	53
6		4844.00	50.66	74.00	-23.34	44.11	6.55	Peak	100	53
7		7266.00	43.15	54.00	-10.85	31.54	11.61	Average	100	325
8		7266.00	58.86	74.00	-15.14	47.25	11.61	Peak	100	325

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

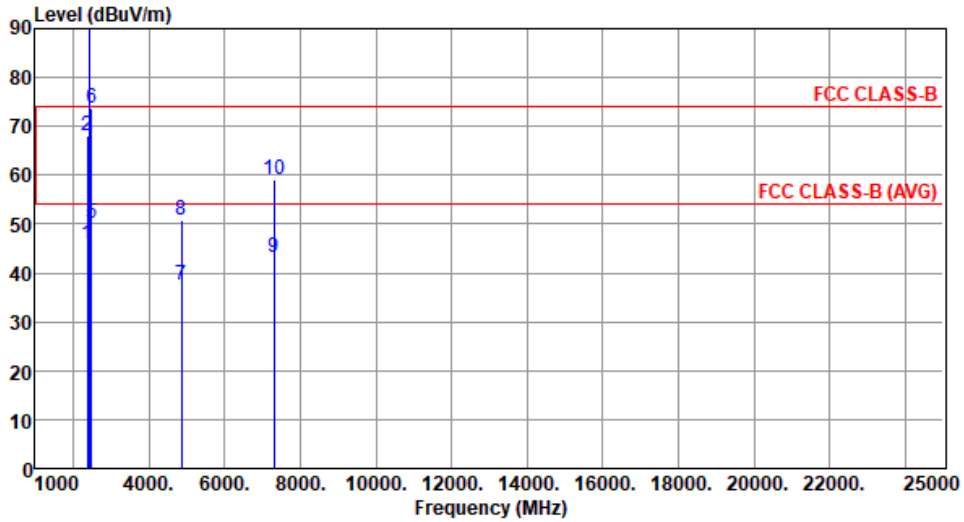
Modulation	ax HE40	**Test Freq. (MHz)**	2437
Polarization	Horizontal	**Test Configuration**	1



		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	41.65	54.00	-12.35	41.41	0.24	Average	155	331
2		2390.00	58.14	74.00	-15.86	57.90	0.24	Peak	155	331
3	*	2437.00	94.96			94.70	0.26	Average	155	331
4	*	2437.00	108.51			108.25	0.26	Peak	155	331
5		2483.50	44.85	54.00	-9.15	44.60	0.25	Average	155	331
6		2483.50	62.21	74.00	-11.79	61.96	0.25	Peak	155	331
7		4874.00	37.22	54.00	-16.78	30.74	6.48	Average	100	54
8		4874.00	50.84	74.00	-23.16	44.36	6.48	Peak	100	54
9		7311.00	43.15	54.00	-10.85	31.39	11.76	Average	100	66
10		7311.00	58.62	74.00	-15.38	46.86	11.76	Peak	100	66

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

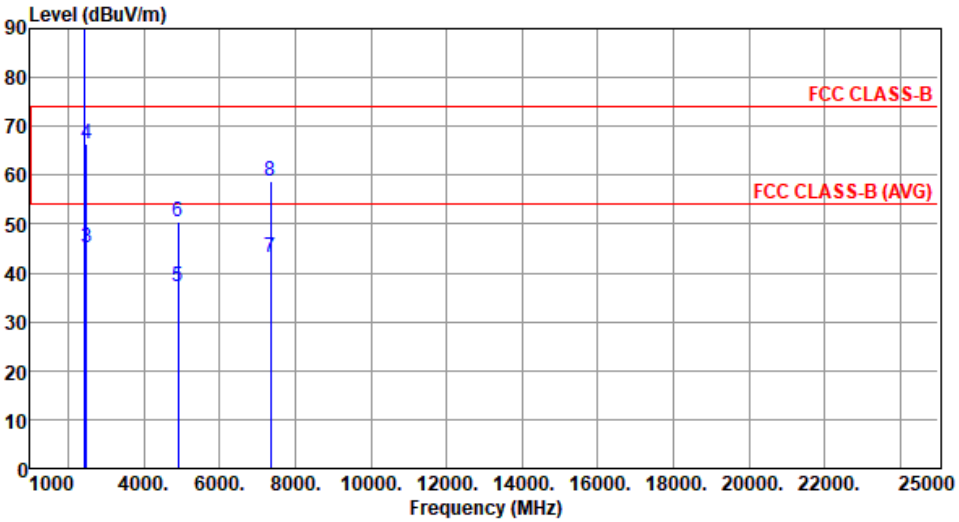
Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Vertical	Test Configuration	1



		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	45.72	54.00	-8.28	45.48	0.24	Average	237	6
2		2390.00	68.00	74.00	-6.00	67.76	0.24	Peak	237	6
3	*	2437.00	102.90			102.64	0.26	Average	237	6
4	*	2437.00	116.46			116.20	0.26	Peak	237	6
5		2483.50	50.28	54.00	-3.72	50.03	0.25	Average	237	6
6		2483.50	73.71	74.00	-0.29	73.46	0.25	Peak	237	6
7		4874.00	37.46	54.00	-16.54	30.98	6.48	Average	100	345
8		4874.00	50.91	74.00	-23.09	44.43	6.48	Peak	100	345
9		7311.00	43.26	54.00	-10.74	31.50	11.76	Average	100	84
10		7311.00	58.95	74.00	-15.05	47.19	11.76	Peak	100	84

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

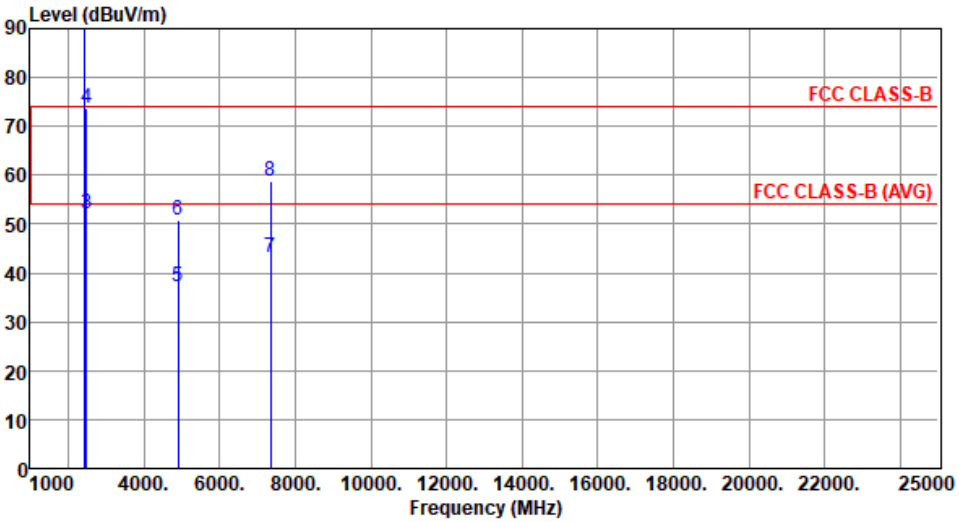
Modulation	ax HE40	Test Freq. (MHz)	2452
Polarization	Horizontal	Test Configuration	1



		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	93.65			93.37	0.28	Average	155	321
2	*	2452.00	105.81			105.53	0.28	Peak	155	321
3		2483.50	45.15	54.00	-8.85	44.90	0.25	Average	155	321
4		2483.50	66.42	74.00	-7.58	66.17	0.25	Peak	155	321
5		4904.00	37.12	54.00	-16.88	30.70	6.42	Average	100	61
6		4904.00	50.45	74.00	-23.55	44.03	6.42	Peak	100	61
7		7356.00	43.11	54.00	-10.89	31.29	11.82	Average	100	58
8		7356.00	58.92	74.00	-15.08	47.10	11.82	Peak	100	58

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	Test Configuration	1



		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	101.62			101.34	0.28	Average	212	357
2	*	2452.00	113.73			113.45	0.28	Peak	212	357
3		2483.50	52.17	54.00	-1.83	51.92	0.25	Average	212	357
4		2483.50	73.68	74.00	-0.32	73.43	0.25	Peak	212	357
5		4904.00	37.25	54.00	-16.75	30.83	6.42	Average	100	55
6		4904.00	50.68	74.00	-23.32	44.26	6.42	Peak	100	55
7		7356.00	43.02	54.00	-10.98	31.20	11.82	Average	100	221
8		7356.00	58.81	74.00	-15.19	46.99	11.82	Peak	100	221

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

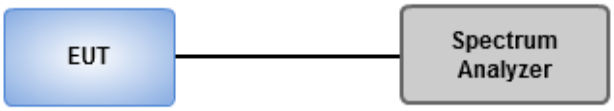
Reference level measurement

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

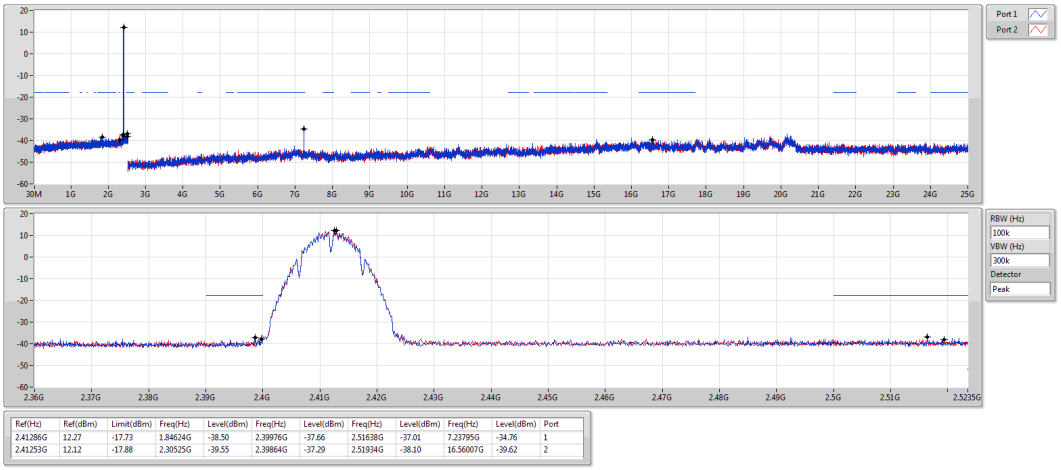
3.6.3 Test Setup



3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

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

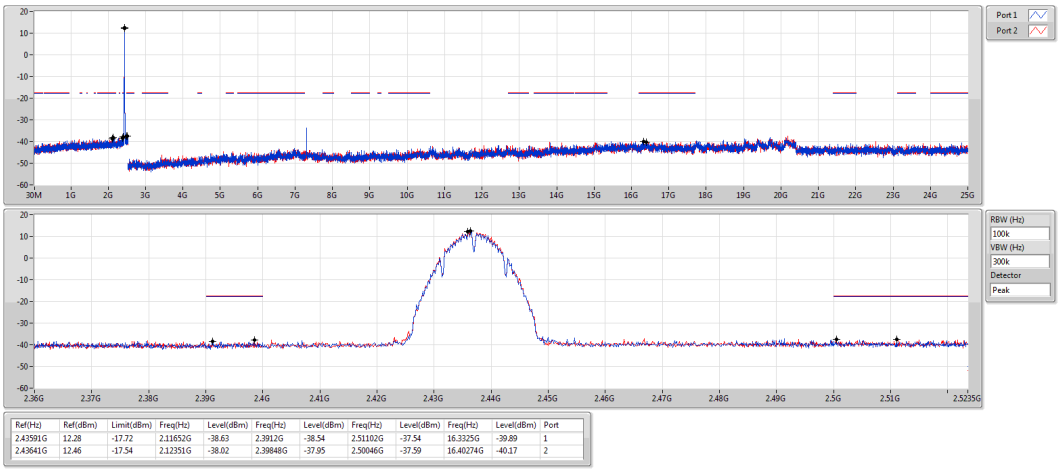
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41286G	12.27	-17.73	1.84624G	-38.50	2.39976G	-37.66	2.51638G	-37.01	7.23795G	-34.76	1
2.41253G	12.12	-17.88	2.30525G	-39.55	2.39864G	-37.29	2.51934G	-38.10	16.56007G	-39.62	2

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

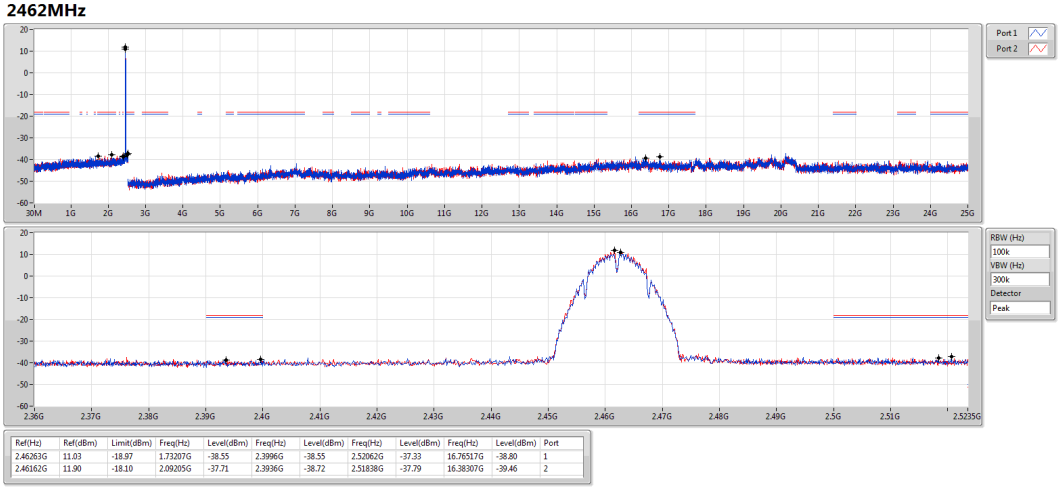
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43591G	12.28	-17.72	2.11652G	-38.63	2.3912G	-38.54	2.51102G	-37.54	16.3325G	-39.89	1
2.43641G	12.46	-17.54	2.12351G	-38.02	2.39848G	-37.95	2.50046G	-37.59	16.40274G	-40.17	2

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

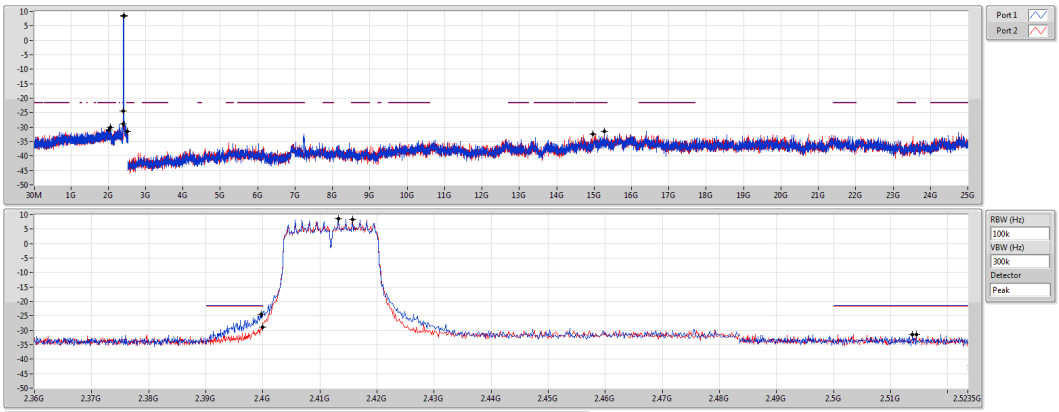
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46263G	11.03	-18.97	1.73207G	-38.55	2.3996G	-38.55	2.52062G	-37.33	16.76517G	-38.80	1
2.46162G	11.90	-18.10	2.09205G	-37.71	2.3936G	-38.72	2.51838G	-37.79	16.38307G	-39.46	2

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

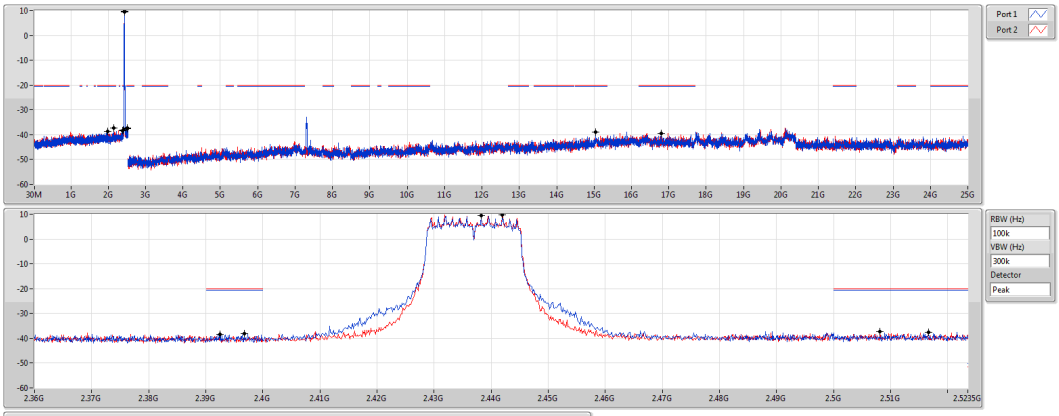
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41319G	8.55	-21.45	2.05477G	-30.10	2.39976G	-24.41	2.51382G	-31.40	15.27049G	-31.55	1
2.4157G	8.33	-21.67	2.02914G	-30.99	2.39992G	-28.98	2.51446G	-31.37	14.96986G	-32.42	2

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

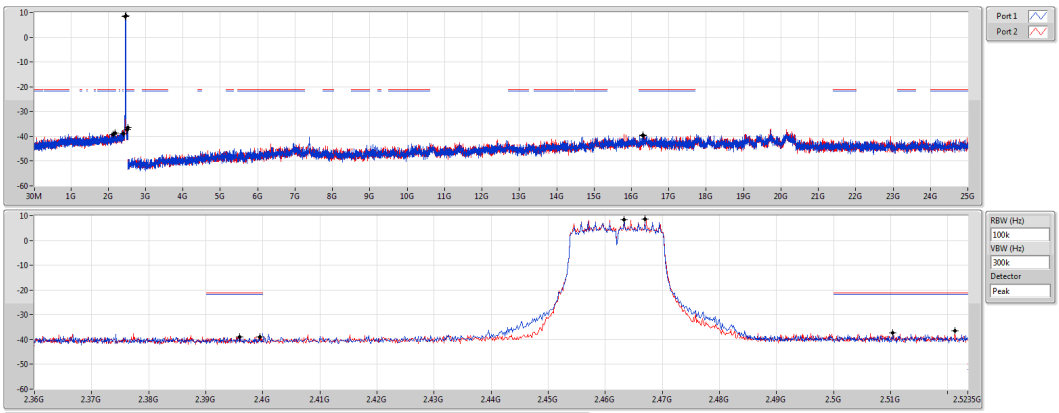
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43824G	9.40	-20.60	2.14564G	-37.35	2.39672G	-38.20	2.51662G	-37.61	15.04572G	-39.02	1
2.44192G	9.80	-20.20	1.99186G	-38.78	2.39248G	-38.44	2.50814G	-37.21	16.79608G	-39.37	2

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

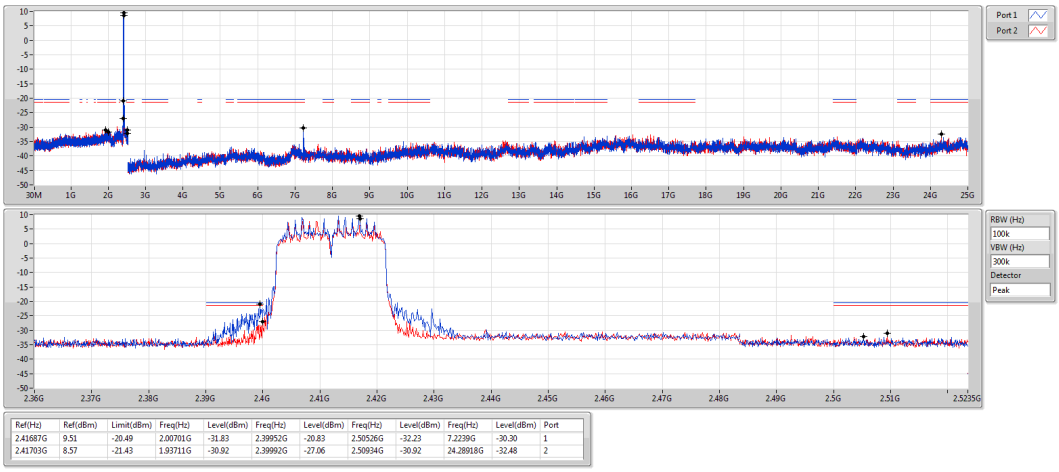
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46329G	8.28	-21.72	2.12467G	-39.11	2.39944G	-38.85	2.51038G	-37.35	16.30721G	-39.50	1
2.46697G	8.73	-21.27	2.19341G	-38.78	2.39592G	-38.82	2.52126G	-36.60	16.31002G	-39.70	2

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

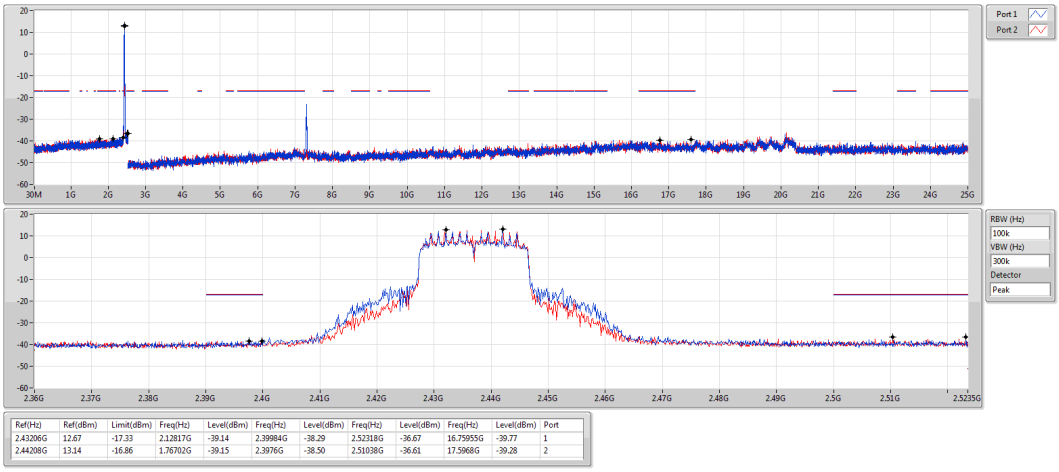
2412MHz



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	9.51	-20.49	2.00701G	-31.83	2.39952G	-20.83	2.50526G	-32.23	7.2239G	-30.30	1
2.41703G	8.57	-21.43	1.93711G	-30.92	2.39992G	-27.06	2.50934G	-30.92	24.28918G	-32.48	2

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

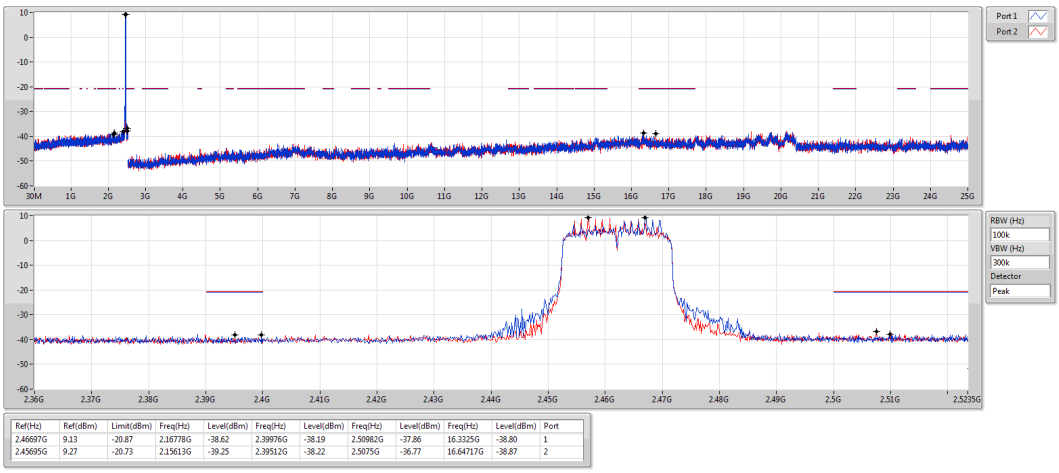
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43206G	12.67	-17.33	2.12817G	-39.14	2.39984G	-38.29	2.52318G	-36.67	16.75955G	-39.77	1
2.44208G	13.14	-16.86	1.76702G	-39.15	2.3976G	-38.50	2.51038G	-36.61	17.5968G	-39.28	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	9.13	-20.87	2.16778G	-38.62	2.39976G	-38.19	2.50982G	-37.86	16.3325G	-38.80	1
2.45695G	9.27	-20.73	2.15613G	-39.25	2.39512G	-38.22	2.5075G	-36.77	16.64717G	-38.87	2

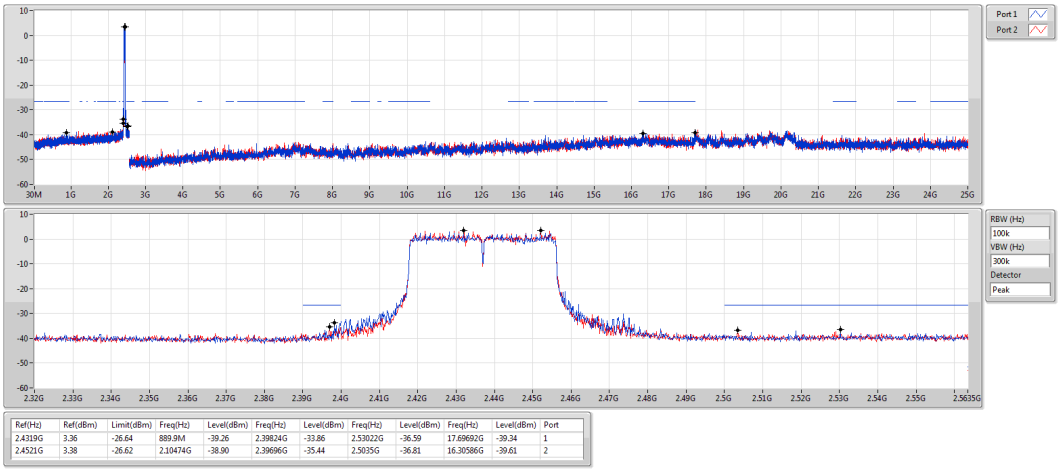
802.11ax HEW40_Nss1,(MCS0)_2TX **CSE NdB**

2422MHz

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43691G	2.85	-27.15	1.9536G	-31.10	2.39968G	-27.66	2.51774G	-30.56	15.03539G	-32.87	1
2.41687G	1.99	-28.01	1.63529G	-30.92	2.39984G	-29.42	2.56206G	-30.55	15.32706G	-32.18	2

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

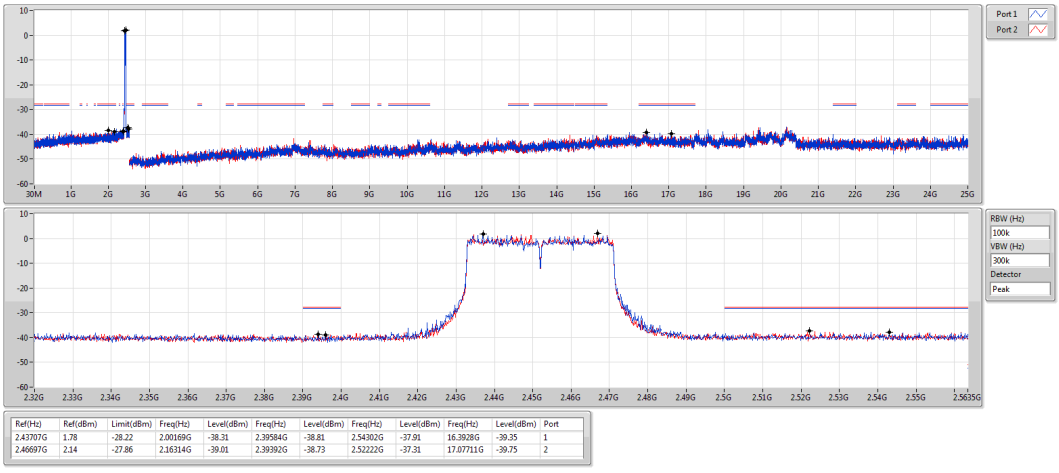
2437MHz



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	3.36	-26.64	889.9M	-39.26	2.39824G	-33.86	2.53022G	-36.59	17.69692G	-39.34	1
2.4521G	3.38	-26.62	2.10474G	-38.90	2.39696G	-35.44	2.5035G	-36.81	16.30586G	-39.61	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
2.43707G	1.78	-28.22	2.00169G	-38.31	2.39584G	-38.81	2.54302G	-37.91	16.3928G	-39.35	1
2.46697G	2.14	-27.86	2.16314G	-39.01	2.39392G	-38.73	2.52222G	-37.31	17.07711G	-39.75	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==