FCC Test Report

FCC ID	:	**I8811AXAP22**
Equipment	:	**802.11ax (WiFi 6) Dual-Radio Unified Access Point**
Model No.	:	**WAX510D, NWA110AX**
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	:	**Dec. 18, 2019**
Tested Date	:	**Dec. 23, 2019 ~ Jan. 06, 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
FR9D0202AC	Rev. 01	Initial issue	Jan. 21, 2020
FR9D0202AC	Rev. 02	Revising the accessories description & FCC ID	Apr. 23, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 19.532MHz 43.56 (Margin -6.44dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz 73.85 (Margin -0.15dB) – PK	Pass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: ***Non-beamforming mode*** 23.62 ***Beamforming mode*** 20.38	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	WAX510D	802.11ax (WiFi 6) Dual-Radio Unified Access Point	Difference between two models is software. WAX510D (FAT/Thin/Cloud AP), NWA110AX (FAT/Cloud AP).
	NWA110AX	802.11ax (WiFi 6) Dual-Radio PoE Access Point	
✦ The above models, model **WAX510D** 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	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	AP886-V3	Dipole	IPEX	--	4.5	4.5	5.2	5.5
2	AP886-V3	PIFA	IPEX	0	--	--	--	--
3	AP886-V3	Dipole	IPEX	0	4.5	4.5	5.2	5.5
4	AP886-V3	Dipole	IPEX	0	4.5	4.5	5.2	5.5

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: NWA110AX)	Brand: APD Model: WB-18Q12R I/P: 100-240Vac, 50-60Hz, 0.6A Max O/P: 12Vdc, 1.5A Power Line: DC 1.5m non-shielded without core

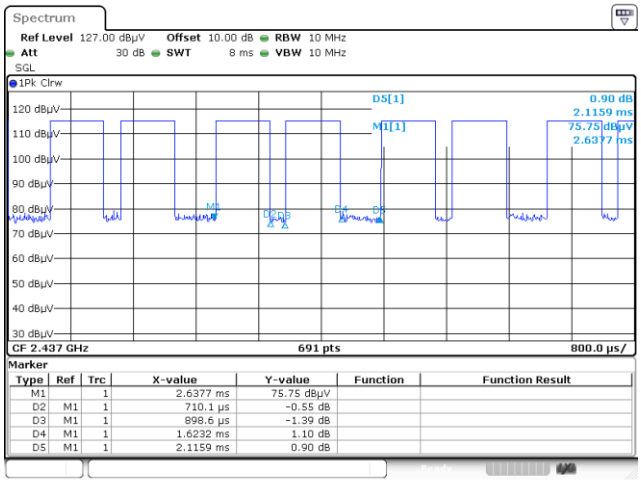
1.1.6 Channel List

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	---	---

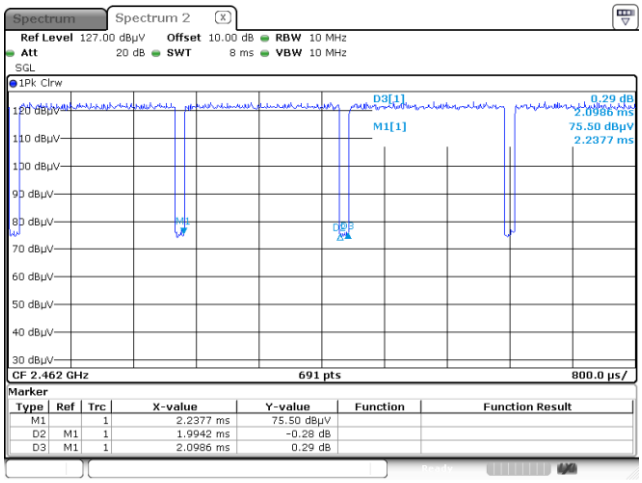
1.1.7 Test Tool and Duty Cycle

Test Tool	QSPR, v5.0-00170		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11b	67.81%	1.69
	11g	95.03%	0.22
	ax (HE20)	90.29%	0.44
	ax (HE40)	88.04%	0.55

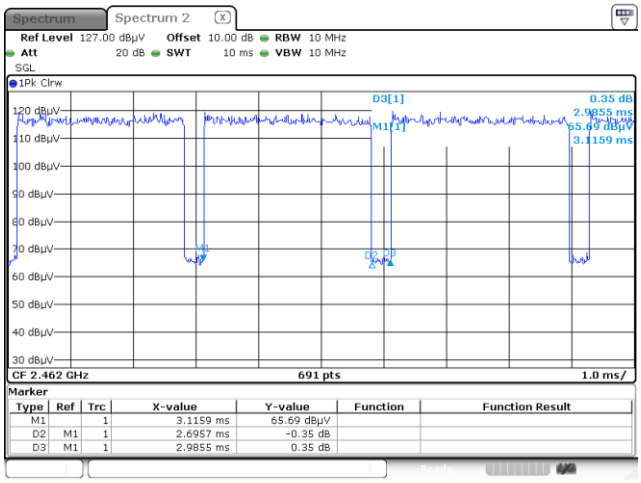
11b



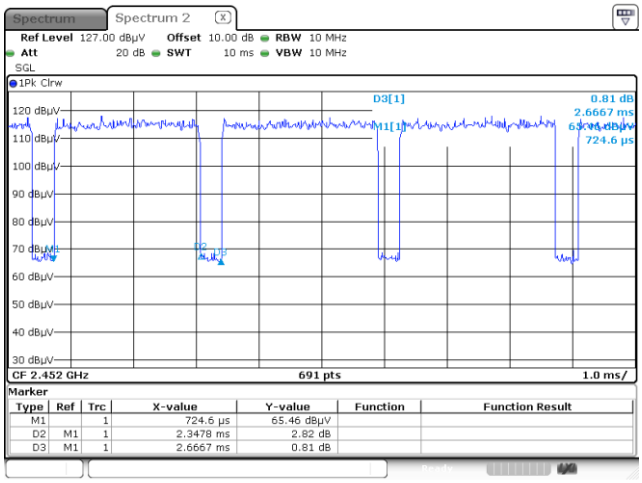
11g



ax HE20



ax HE40



1.1.8 Power Index of Test Tool

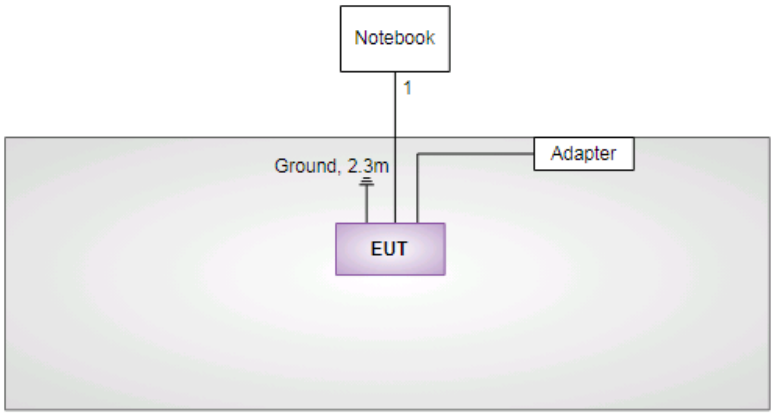
Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	21
11b	2437	20
11b	2462	19.5
11g	2412	20
11g	2437	21
11g	2462	19.5
ax (HE20)	2412	17.5
ax (HE20)	2437	21
ax (HE20)	2462	15.5
ax (HE40)	2422	17
ax (HE40)	2437	17.5
ax (HE40)	2452	15

1.2 Local Support Equipment List

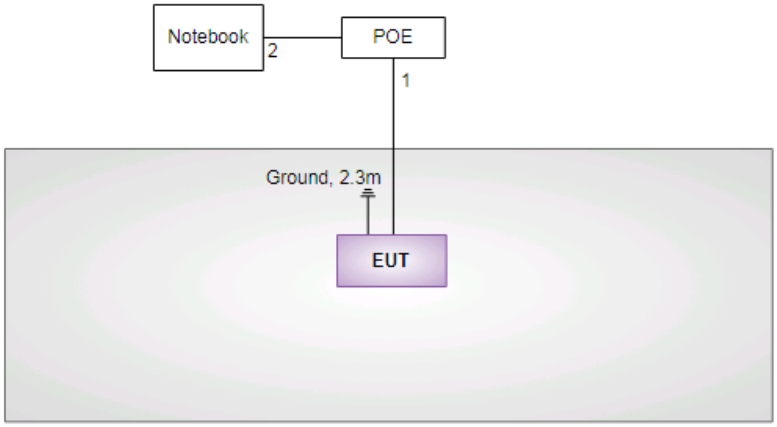
Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	Notebook	DELL	Latitude E5470	DoC	---
2	POE Switch	ZYXEL	XS1930-12HP	---	Provided by applicant.
3	Ground Cable	ICC	GC-2.3m	---	---
4	RJ45	ICC	RJ45-10m	---	---

1.3 Test Setup Chart

Test Setup Diagram (Adapter mode)



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

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

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jan. 06, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
LISN	R&S	ENV216	101579	Mar. 08, 2019	Mar. 07, 2020
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 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	Dec. 23 ~ Dec. 31, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Jan. 07, 2019	Jan. 06, 2020
Receiver	R&S	ESR3	101657	Jan. 08, 2019	Jan. 07, 2020
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 17, 2019	Apr. 16, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Jan. 07, 2019	Jan. 06, 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	Jan. 06, 2020				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 17, 2019	Apr. 16, 2020
Power Meter	Anritsu	ML2495A	1241002	Oct. 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

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

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.96 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	23°C / 69%	Akun Chung
Radiated Emissions	03CH03-WS	21-22°C / 66-67%	Roger Lu Akun Chung
RF Conducted	TH01-WS	22°C / 63%	Brad Wu

- 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

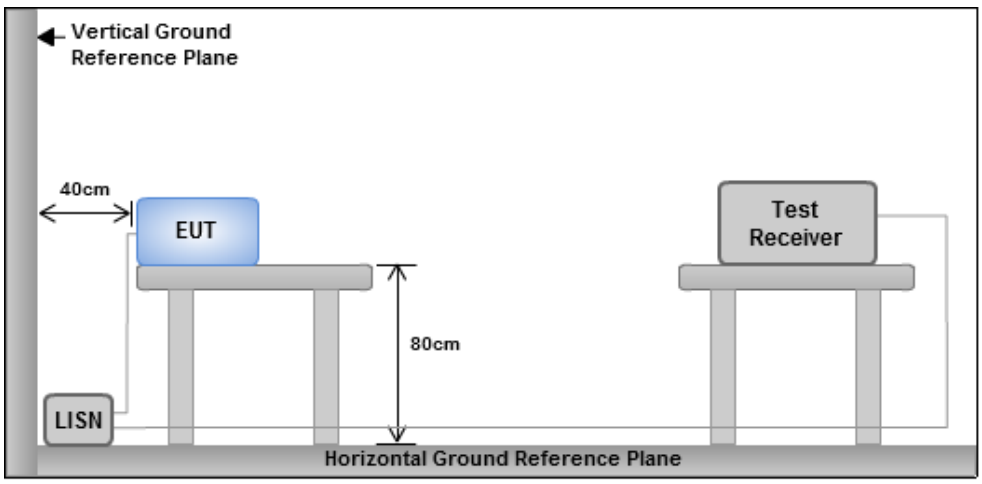
3.1.1 Limit of Conducted Emissions

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

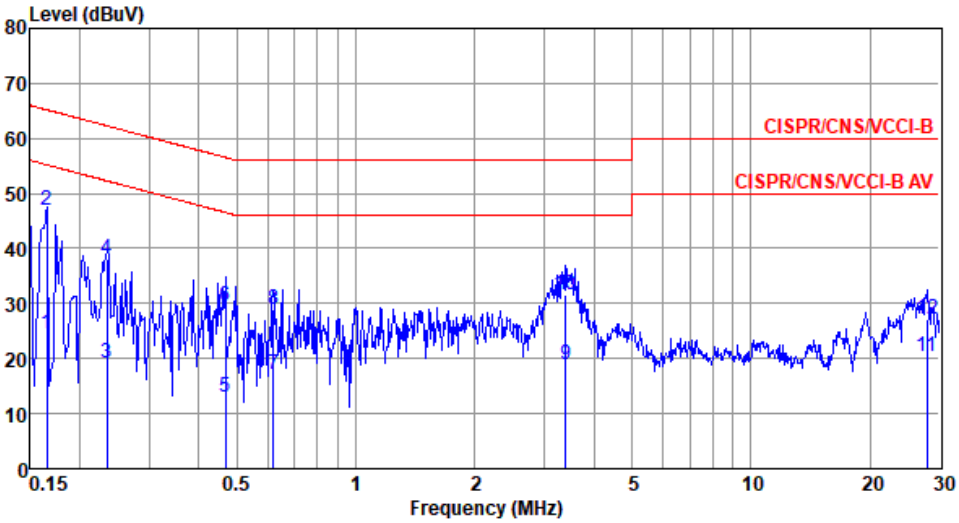


Note: 1. Support units were connected to second LISN.

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

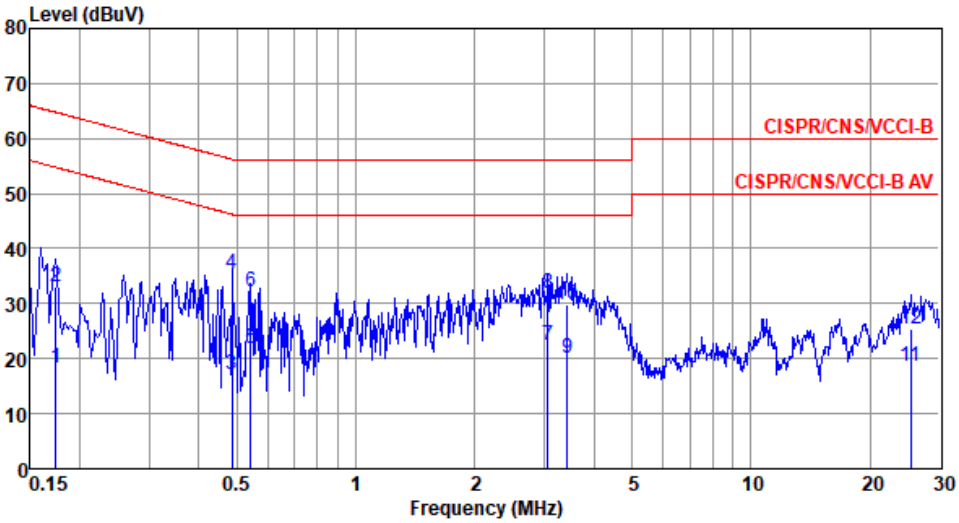
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Line	Test Configuration	1



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.165	24.41	55.21	-30.80	14.66	9.53	0.05	Average
2*	0.165	46.89	65.21	-18.32	37.14	9.53	0.05	QP
3	0.234	19.21	52.30	-33.09	9.40	9.55	0.06	Average
4	0.234	38.19	62.30	-24.11	28.38	9.55	0.06	QP
5	0.469	13.00	46.54	-33.54	3.07	9.58	0.09	Average
6	0.469	29.52	56.54	-27.02	19.59	9.58	0.09	QP
7	0.617	16.98	46.00	-29.02	7.02	9.58	0.10	Average
8	0.617	28.96	56.00	-27.04	19.00	9.58	0.10	QP
9	3.399	18.81	46.00	-27.19	8.58	9.61	0.26	Average
10	3.399	31.50	56.00	-24.50	21.27	9.61	0.26	QP
11	27.855	20.23	50.00	-29.77	9.04	9.63	0.75	Average
12	27.855	27.16	60.00	-32.84	15.97	9.63	0.75	QP

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

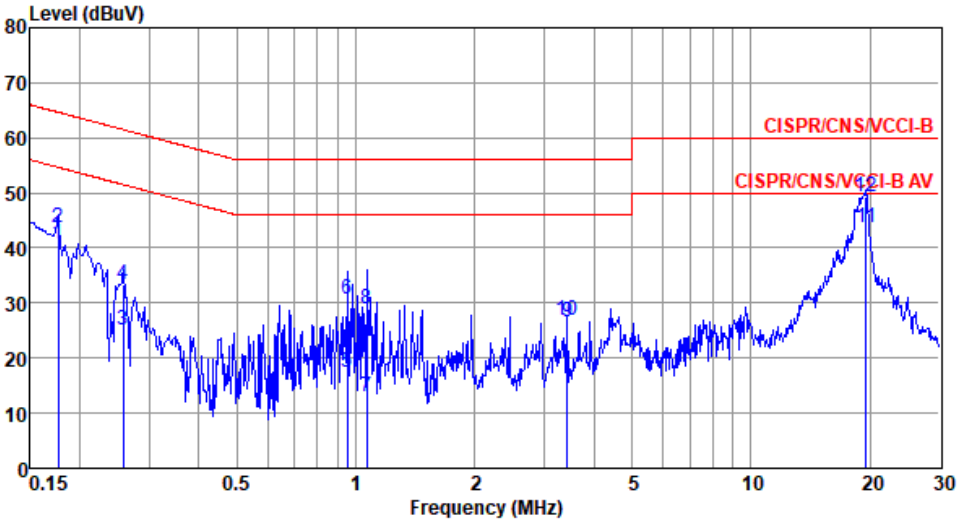
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Neutral	Test Configuration	1



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.174	18.18	54.77	-36.59	8.40	9.58	0.06	Average
2	0.174	33.00	64.77	-31.77	23.22	9.58	0.06	QP
3	0.486	17.08	46.23	-29.15	7.19	9.62	0.09	Average
4*	0.486	35.57	56.23	-20.66	25.68	9.62	0.09	QP
5	0.541	21.94	46.00	-24.06	12.05	9.62	0.09	Average
6	0.541	32.14	56.00	-23.86	22.25	9.62	0.09	QP
7	3.058	22.39	46.00	-23.61	12.22	9.66	0.25	Average
8	3.058	32.00	56.00	-24.00	21.83	9.66	0.25	QP
9	3.436	20.03	46.00	-25.97	9.84	9.66	0.27	Average
10	3.436	29.85	56.00	-26.15	19.66	9.66	0.27	QP
11	25.321	18.50	50.00	-31.50	7.29	9.82	0.71	Average
12	25.321	25.42	60.00	-34.58	14.21	9.82	0.71	QP

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

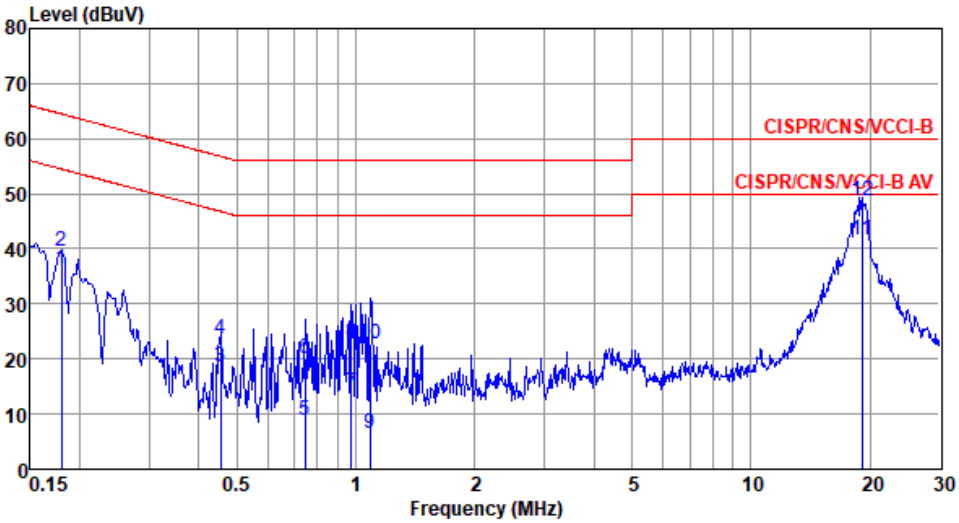
Modulation	11b	Test Freq. (MHz)	2412
Power Phase	Line	Test Configuration	2



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.177	40.77	54.64	-13.87	31.17	9.54	0.06	Average
2	0.177	43.77	64.64	-20.87	34.17	9.54	0.06	QP
3	0.258	25.10	51.51	-26.41	15.48	9.55	0.07	Average
4	0.258	33.41	61.51	-28.10	23.79	9.55	0.07	QP
5	0.953	17.52	46.00	-28.48	7.80	9.60	0.12	Average
6	0.953	30.60	56.00	-25.40	20.88	9.60	0.12	QP
7	1.065	13.12	46.00	-32.88	3.39	9.60	0.13	Average
8	1.065	28.82	56.00	-27.18	19.09	9.60	0.13	QP
9	3.436	26.43	46.00	-19.57	16.55	9.61	0.27	Average
10	3.436	26.83	56.00	-29.17	16.95	9.61	0.27	QP
11*	19.532	43.56	50.00	-6.44	33.25	9.66	0.65	Average
12	19.532	49.44	60.00	-10.56	39.13	9.66	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	2



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.180	36.38	54.50	-18.12	26.74	9.58	0.06	Average
2	0.180	39.50	64.50	-25.00	29.86	9.58	0.06	QP
3	0.454	18.52	46.80	-28.28	8.82	9.61	0.09	Average
4	0.454	23.69	56.80	-33.11	13.99	9.61	0.09	QP
5	0.743	8.72	46.00	-37.28	-1.02	9.63	0.11	Average
6	0.743	19.98	56.00	-36.02	10.24	9.63	0.11	QP
7	0.974	13.93	46.00	-32.07	4.17	9.64	0.12	Average
8	0.974	23.07	56.00	-32.93	13.31	9.64	0.12	QP
9	1.088	6.56	46.00	-39.44	-3.21	9.64	0.13	Average
10	1.088	22.72	56.00	-33.28	12.95	9.64	0.13	QP
11*	19.122	41.59	50.00	-8.41	31.14	9.80	0.65	Average
12	19.122	48.75	60.00	-11.25	38.30	9.80	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

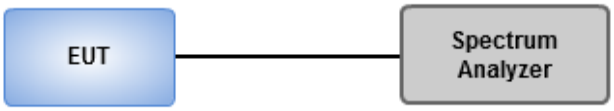
6dB Bandwidth

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	7.971M	13.097M	13M1G1D	6.522M	12.735M
802.11g_Nss1,(6Mbps)_2TX	16.377M	16.425M	16M4D1D	14.493M	16.353M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.913M	18.958M	19M0D1D	18.406M	18.813M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.971M	37.916M	37M9D1D	37.101M	37.627M

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;

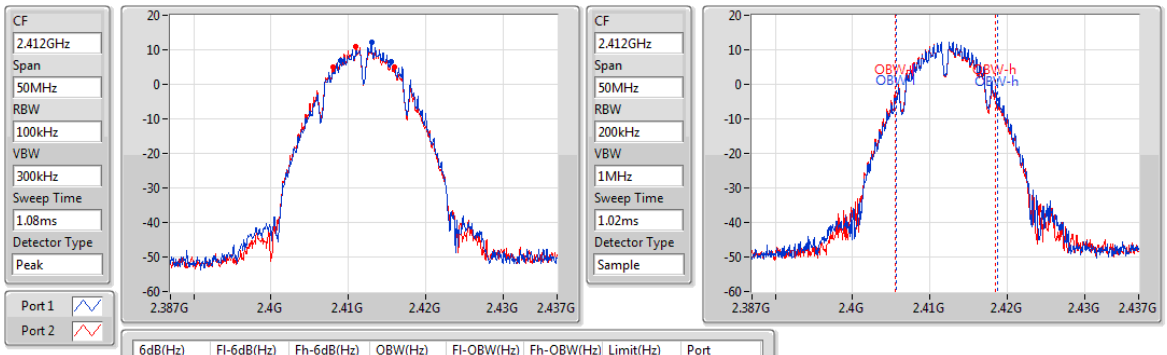
Result

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	6.594M	13.097M	7.971M	13.025M
2437MHz	Pass	500k	7.609M	12.88M	7.101M	12.735M
2462MHz	Pass	500k	6.522M	12.88M	6.594M	12.808M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	14.493M	16.425M	16.377M	16.353M
2437MHz	Pass	500k	16.377M	16.353M	16.014M	16.353M
2462MHz	Pass	500k	16.087M	16.353M	16.304M	16.353M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	18.406M	18.886M	18.913M	18.958M
2437MHz	Pass	500k	18.913M	18.958M	18.768M	18.886M
2462MHz	Pass	500k	18.913M	18.813M	18.623M	18.886M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	37.101M	37.916M	37.826M	37.771M
2437MHz	Pass	500k	37.971M	37.916M	37.826M	37.627M
2452MHz	Pass	500k	37.826M	37.771M	37.971M	37.916M

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

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

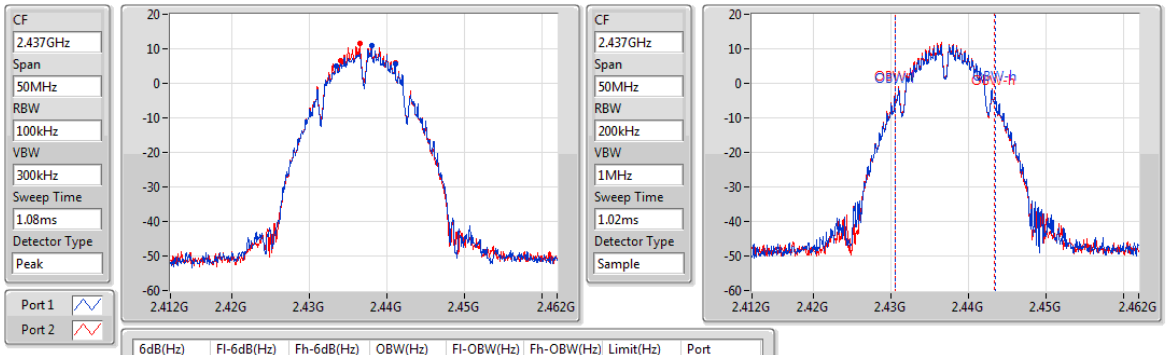
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
6.594M	2.408957G	2.415551G	13.097M	2.405632G	2.418729G	500k	1
7.971M	2.408014G	2.415986G	13.025M	2.405488G	2.418512G	500k	2

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

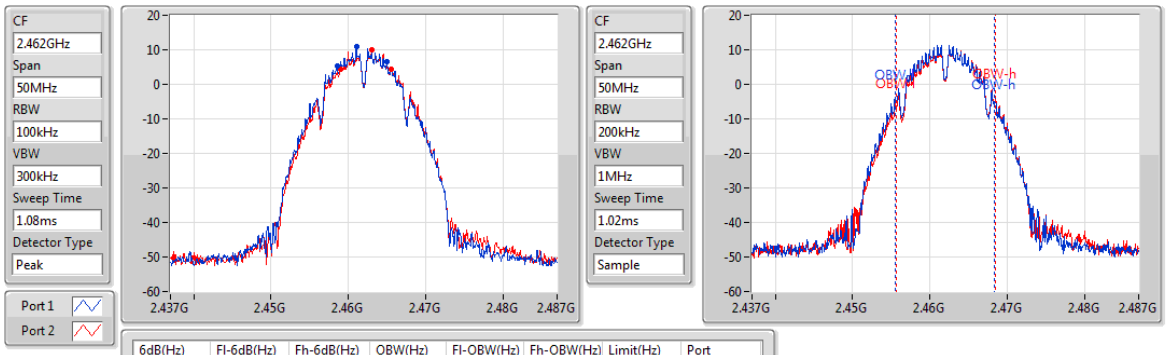
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
7.609M	2.433449G	2.441058G	12.88M	2.43056G	2.44344G	500k	1
7.101M	2.433957G	2.441058G	12.735M	2.43056G	2.443295G	500k	2

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

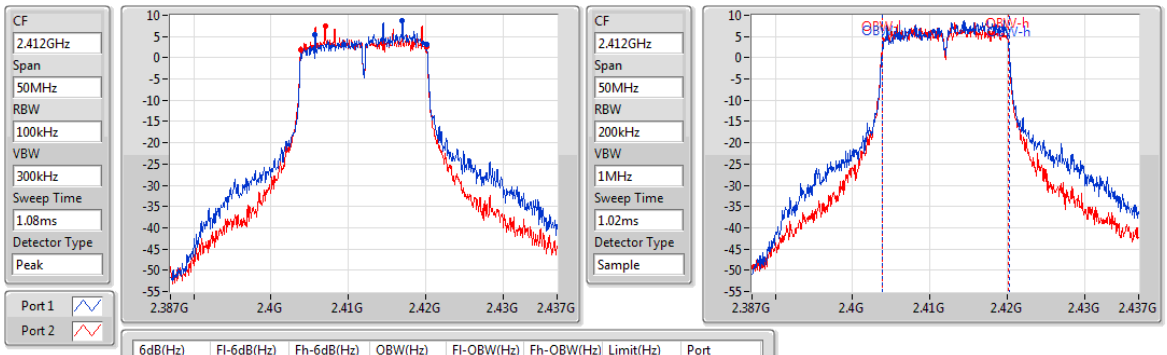
2462MHz



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	12.88M	2.455488G	2.468368G	500k	1
6.594M	2.458957G	2.465551G	12.808M	2.455705G	2.468512G	500k	2

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

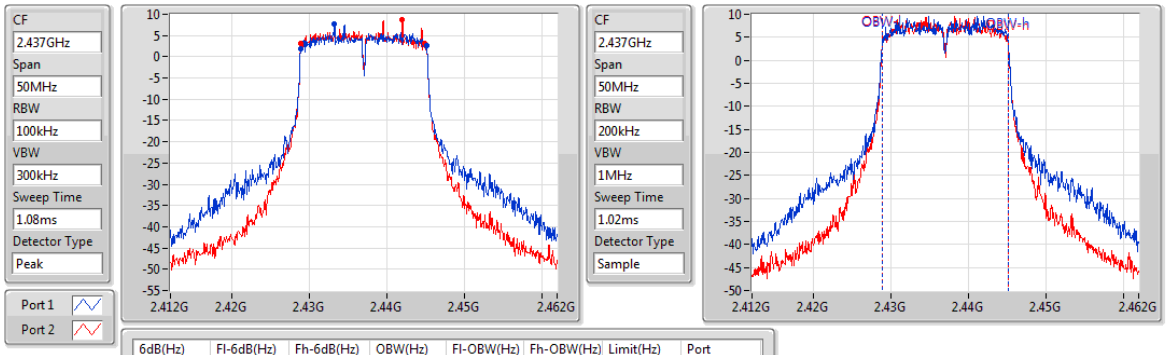
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
14.493M	2.405696G	2.420188G	16.425M	2.403823G	2.420249G	500k	1
16.377M	2.403812G	2.420188G	16.353M	2.403823G	2.420177G	500k	2

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

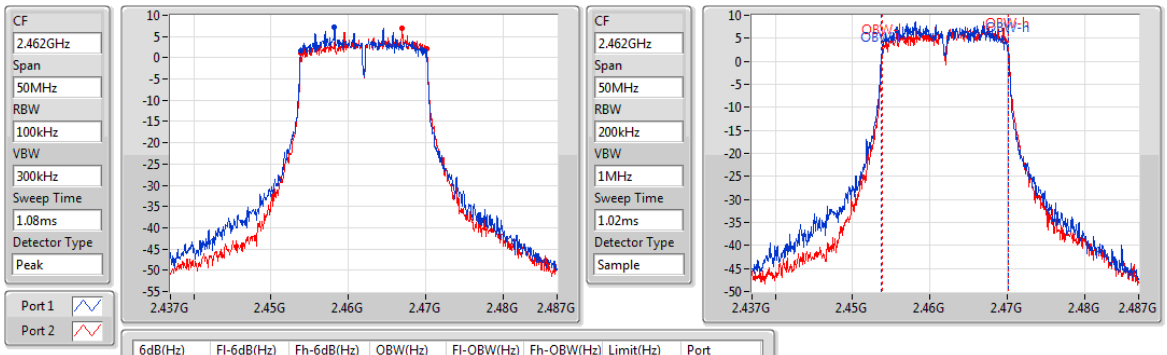
2437MHz



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	2.428823G	2.445177G	500k	1
16.014M	2.428884G	2.444899G	16.353M	2.428823G	2.445177G	500k	2

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

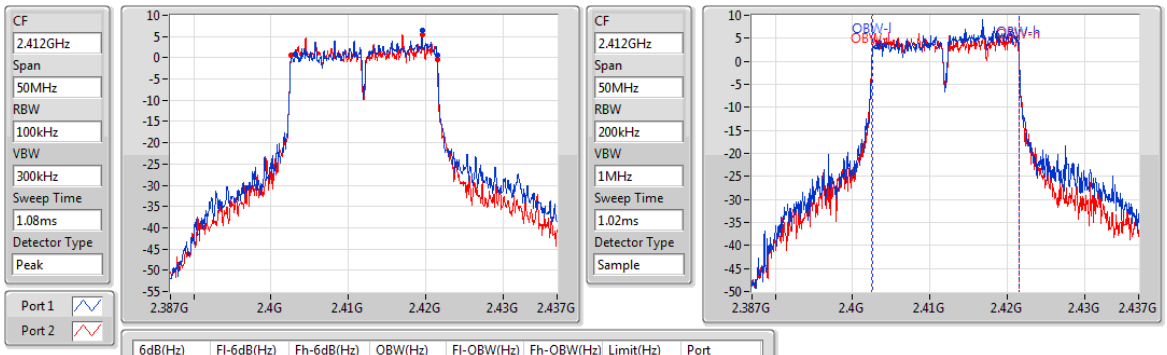
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.087M	2.453812G	2.469899G	16.353M	2.453751G	2.470104G	500k	1
16.304M	2.453884G	2.470188G	16.353M	2.453823G	2.470177G	500k	2

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

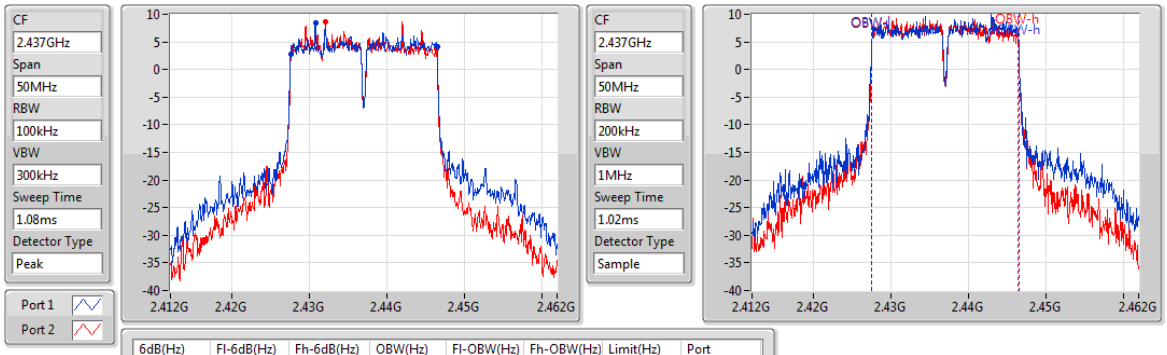
2412MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.406M	2.403087G	2.421493G	18.886M	2.402593G	2.421479G	500k	1
18.913M	2.40258G	2.421493G	18.958M	2.402521G	2.421479G	500k	2

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

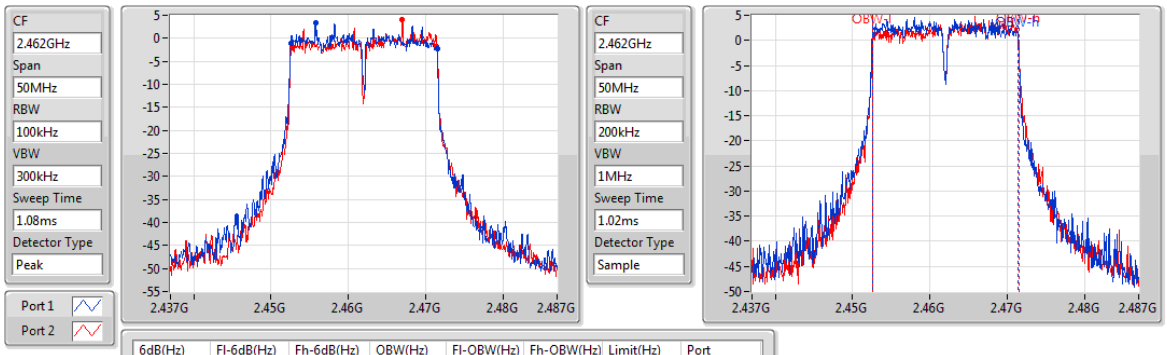
2437MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.913M	2.42758G	2.446493G	18.958M	2.427521G	2.446479G	500k	1
18.768M	2.42758G	2.446348G	18.886M	2.427521G	2.446407G	500k	2

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

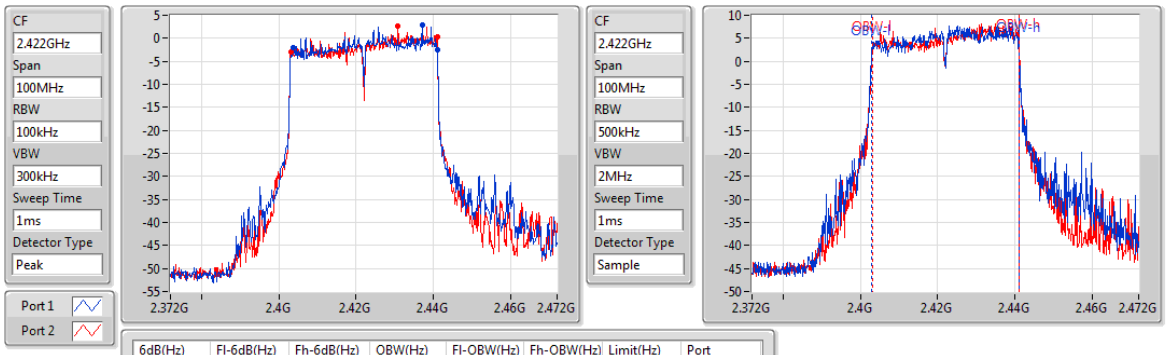
2462MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.913M	2.45258G	2.471493G	18.813M	2.452593G	2.471407G	500k	1
18.623M	2.452797G	2.47142G	18.886M	2.452593G	2.471479G	500k	2

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

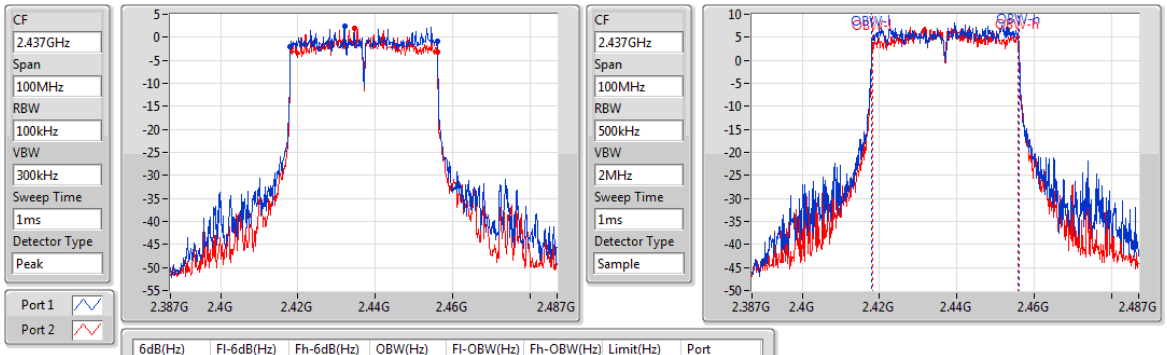
2422MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.101M	2.403884G	2.440986G	37.916M	2.403042G	2.440958G	500k	1
37.826M	2.403159G	2.440986G	37.771M	2.403187G	2.440958G	500k	2

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

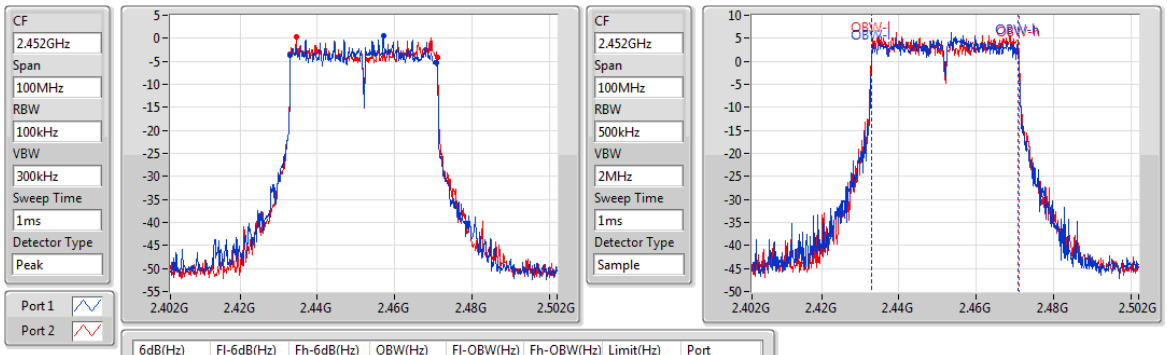
2437MHz



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	37.916M	2.418042G	2.455958G	500k	1
37.826M	2.418159G	2.455986G	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
37.826M	2.433014G	2.470841G	37.771M	2.433042G	2.470813G	500k	1
37.971M	2.433014G	2.470986G	37.916M	2.433042G	2.470958G	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	**23.62**	0.23014
802.11g_Nss1,(6Mbps)_2TX	23.33	0.21528
802.11ax HEW20_Nss1,(MCS0)_2TX	23.39	0.21827
802.11ax HEW40_Nss1,(MCS0)_2TX	19.86	0.09683

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	0.00	20.42	20.79	23.62	30.00
2437MHz	Pass	0.00	19.27	20.15	22.74	30.00
2462MHz	Pass	0.00	18.92	19.49	22.22	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	0.00	19.26	19.35	22.32	30.00
2437MHz	Pass	0.00	20.17	20.47	23.33	30.00
2462MHz	Pass	0.00	18.88	19.11	22.01	30.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	0.00	17.24	17.03	20.15	30.00
2437MHz	Pass	0.00	20.28	20.47	23.39	30.00
2462MHz	Pass	0.00	15.03	15.34	18.20	30.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	0.00	16.54	16.92	19.74	30.00
2437MHz	Pass	0.00	16.84	16.86	19.86	30.00
2452MHz	Pass	0.00	14.51	15.23	17.90	30.00

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	**20.38**	0.10914
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	16.85	0.04842

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	14.23	14.02	17.14	30.00
2437MHz	Pass	3.01	17.27	17.46	20.38	30.00
2462MHz	Pass	3.01	12.02	12.33	15.19	30.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.01	13.53	13.91	16.73	30.00
2437MHz	Pass	3.01	13.83	13.85	16.85	30.00
2452MHz	Pass	3.01	11.5	12.22	14.89	30.00

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

3.4 Power Spectral Density

3.4.1 Limit of Power Spectral Density

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

3.4.2 Test Procedures

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

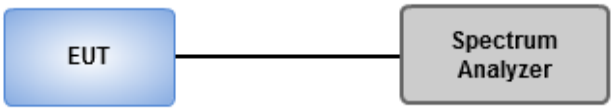
2 Set the sweep time to: ≥ 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).

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	2.28
802.11g_Nss1,(6Mbps)_2TX	-2.34
802.11ax HEW20_Nss1,(MCS0)_2TX	-3.48
802.11ax HEW40_Nss1,(MCS0)_2TX	-8.98

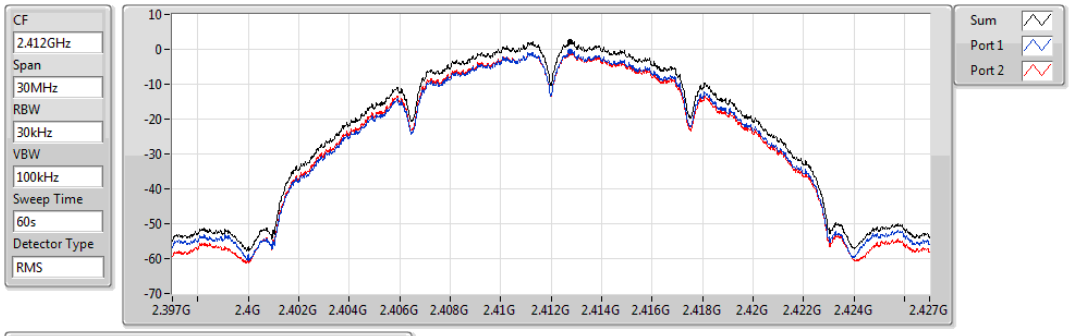
Result

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	-0.65	-0.81	2.28	8.00
2437MHz	Pass	3.01	-1.95	-1.31	1.36	8.00
2462MHz	Pass	3.01	-1.81	-2.12	0.96	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-5.32	-6.40	-2.89	8.00
2437MHz	Pass	3.01	-5.27	-5.09	-2.34	8.00
2462MHz	Pass	3.01	-5.99	-6.42	-3.53	8.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.01	-8.51	-9.55	-6.01	8.00
2437MHz	Pass	3.01	-6.31	-6.50	-3.48	8.00
2462MHz	Pass	3.01	-11.26	-11.30	-8.27	8.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.01	-12.16	-11.52	-8.98	8.00
2437MHz	Pass	3.01	-11.74	-12.37	-9.58	8.00
2452MHz	Pass	3.01	-14.44	-14.06	-11.53	8.00

DG = Directional Gain = 0 + 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**

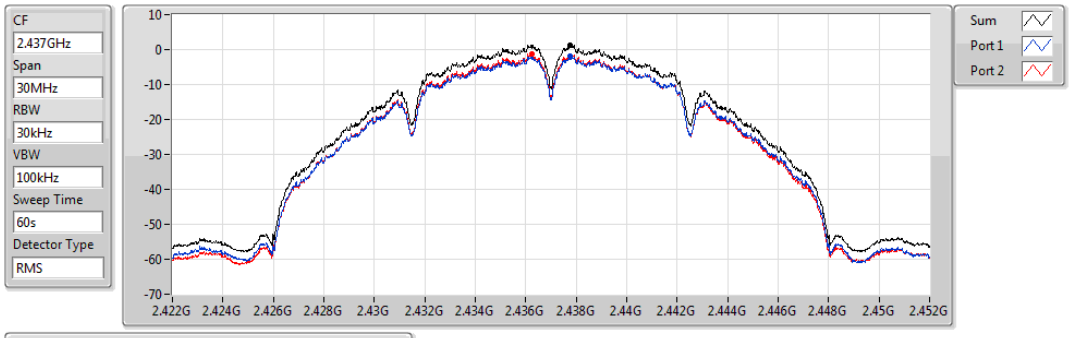
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.28	2.28	-0.65	-0.81

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

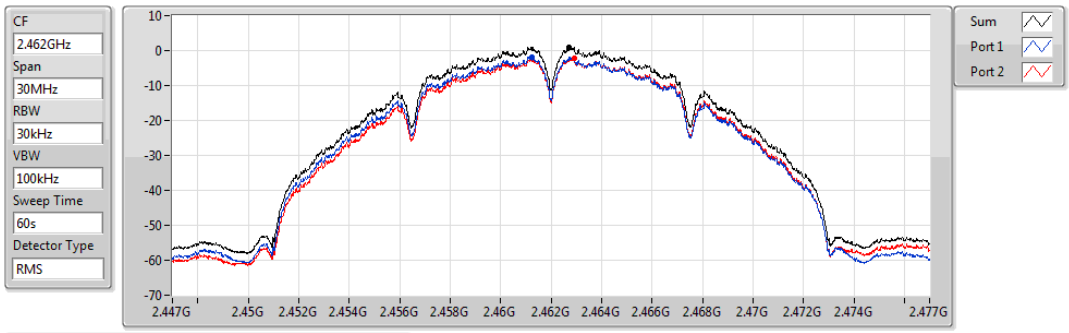
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.36	1.36	-1.95	-1.31

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

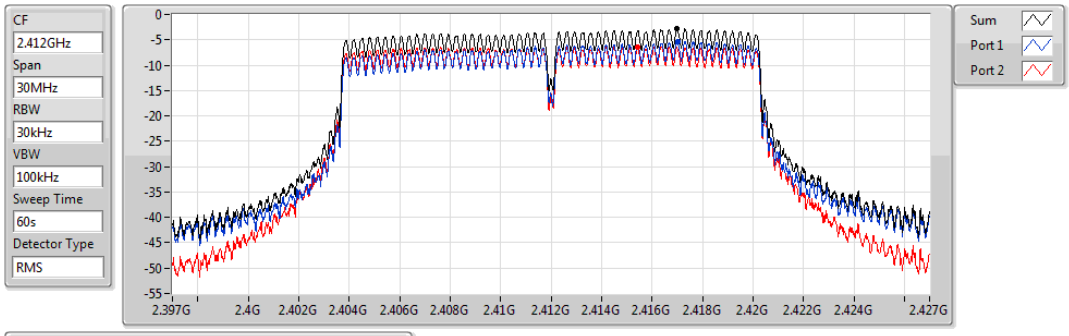
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.96	0.96	-1.81	-2.12

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

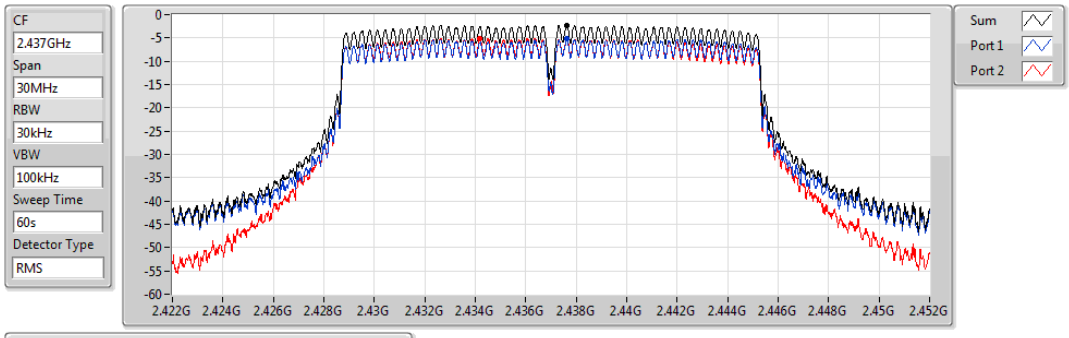
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.89	-2.89	-5.32	-6.40

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

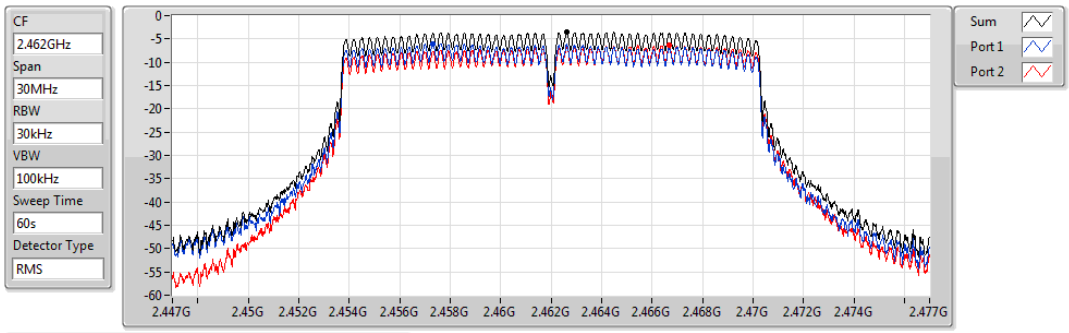
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.34	-2.34	-5.27	-5.09

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

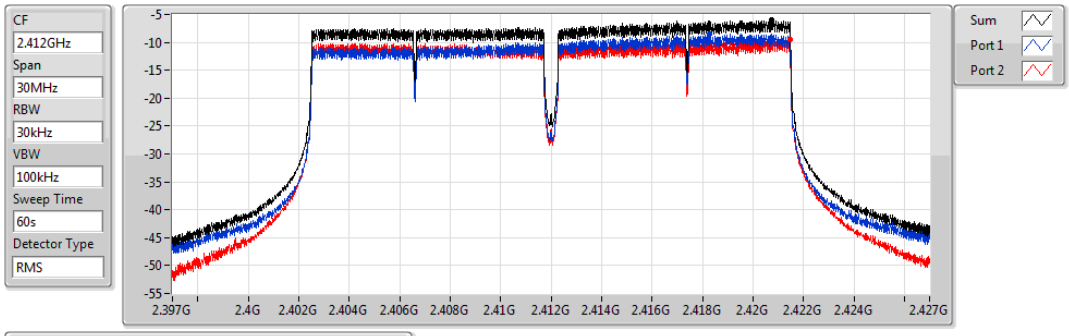
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.53	-3.53	-5.99	-6.42

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

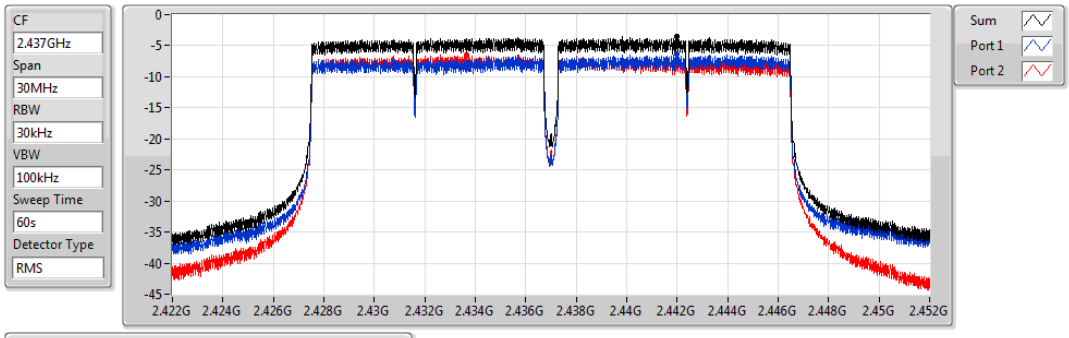
2412MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.01	-6.01	-8.51	-9.55

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

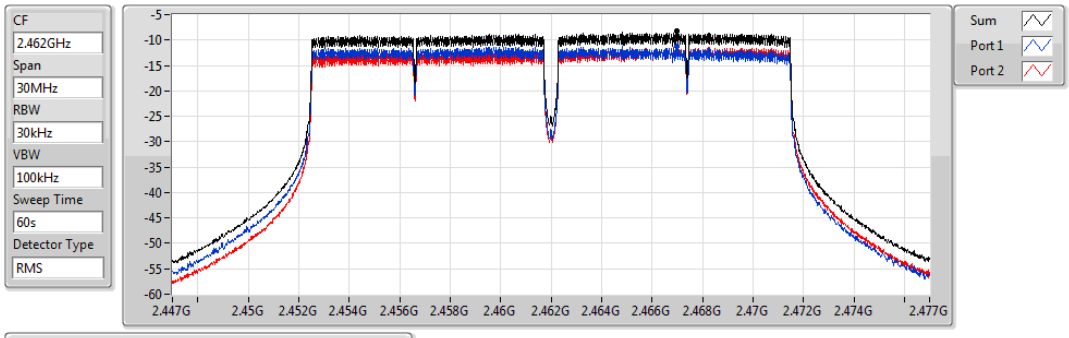
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.48	-3.48	-6.31	-6.50

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

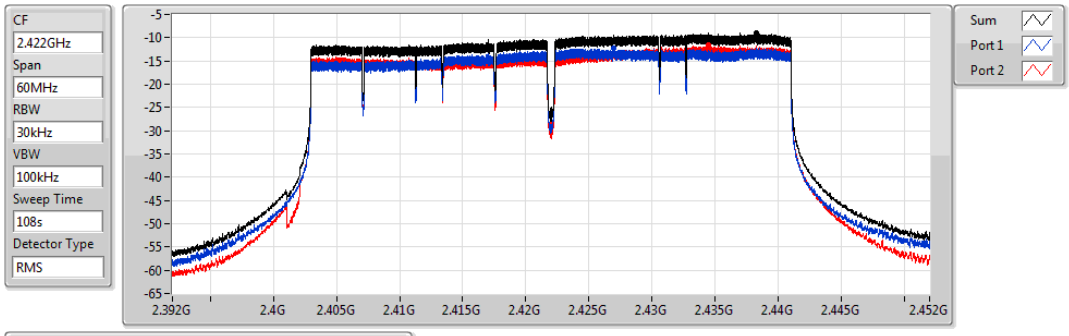
2462MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.27	-8.27	-11.26	-11.30

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

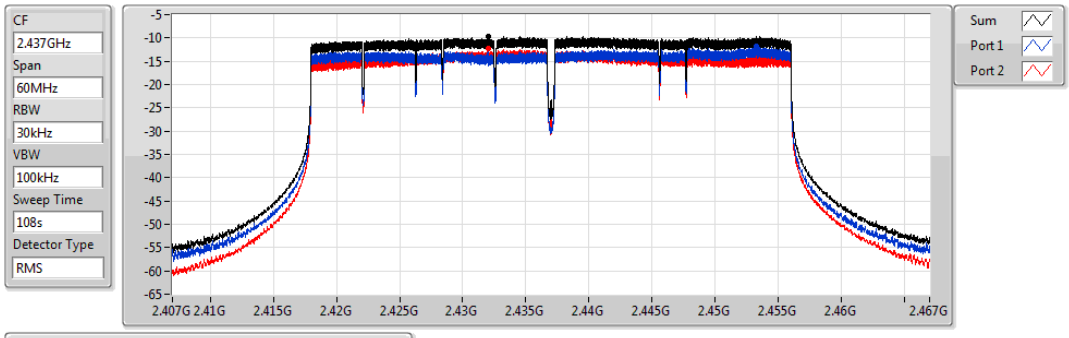
2422MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.98	-8.98	-12.16	-11.52

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

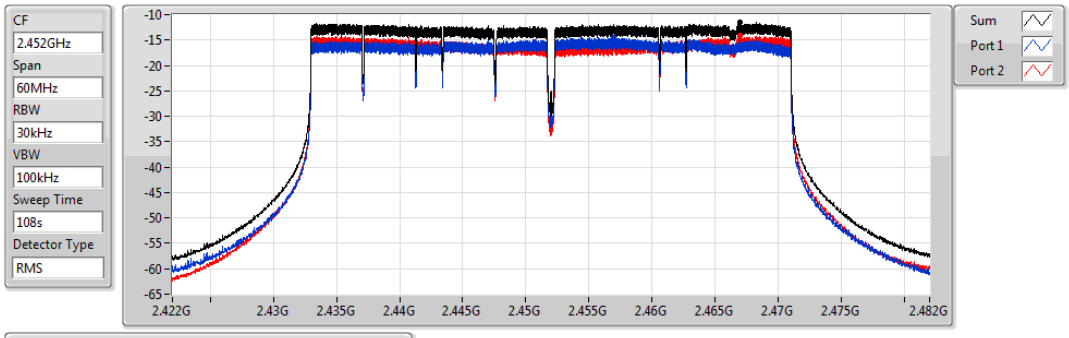
2437MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.58	-9.58	-11.74	-12.37

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

2452MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.53	-11.53	-14.44	-14.06

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

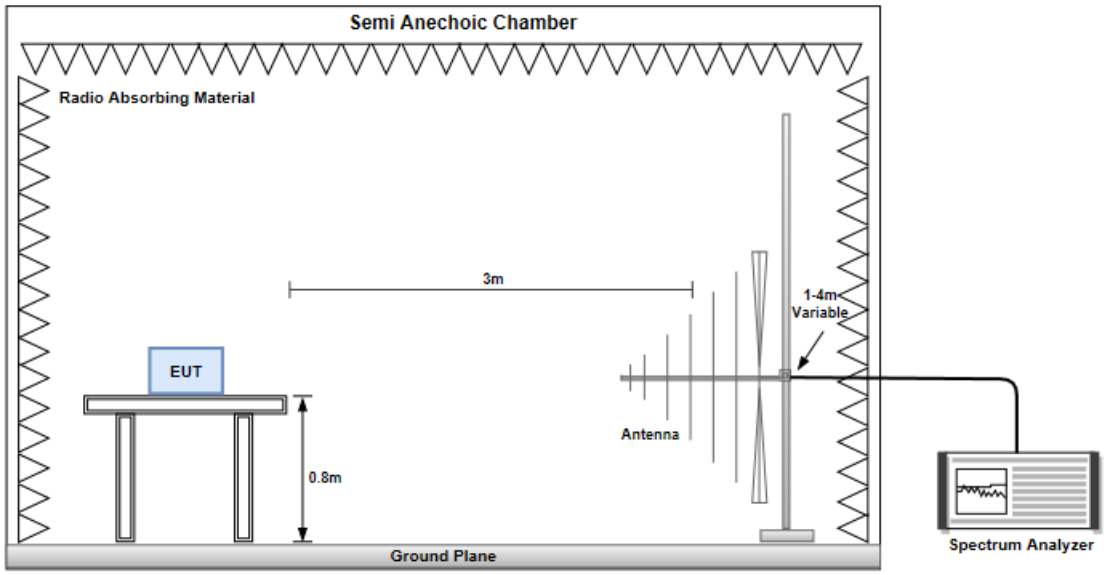
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

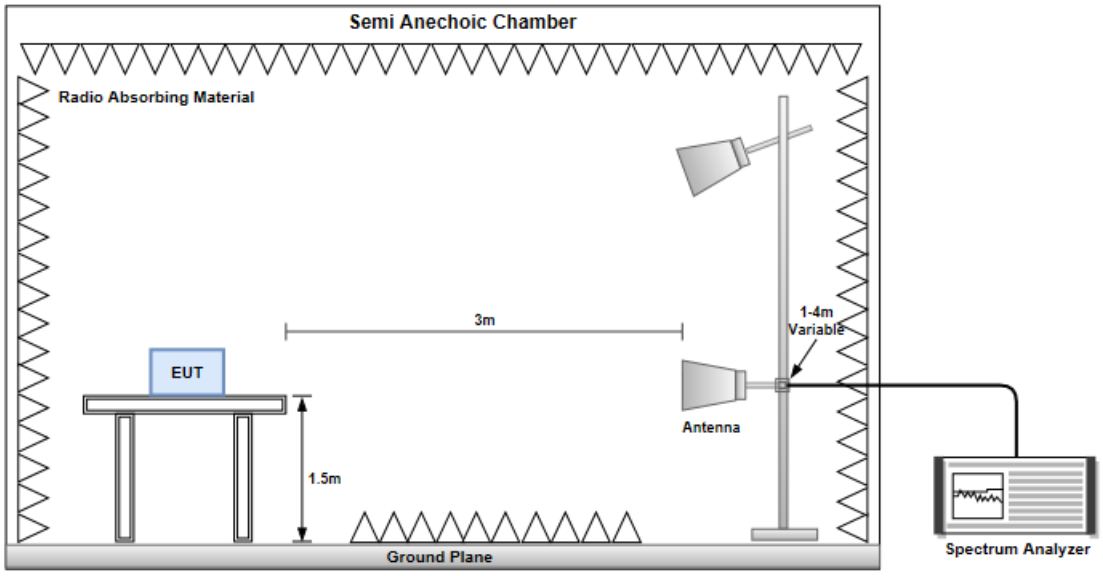
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

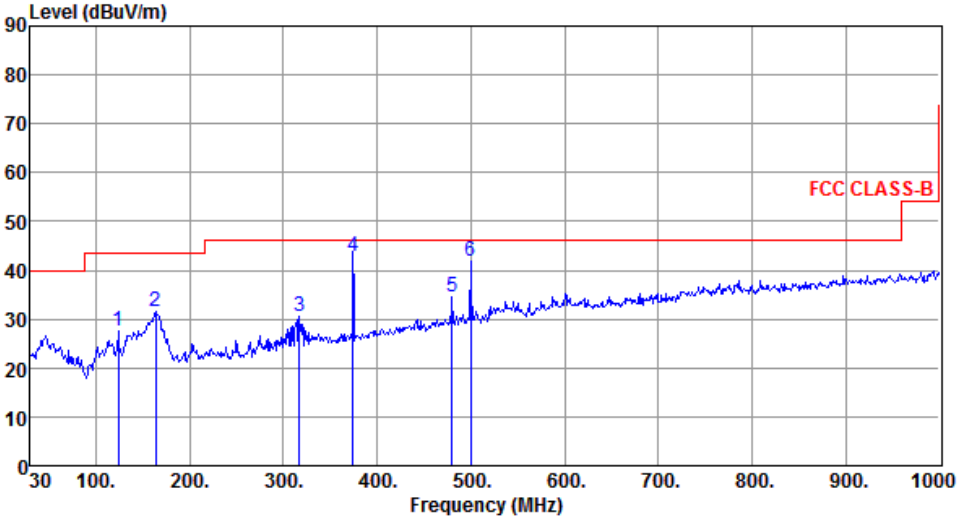


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

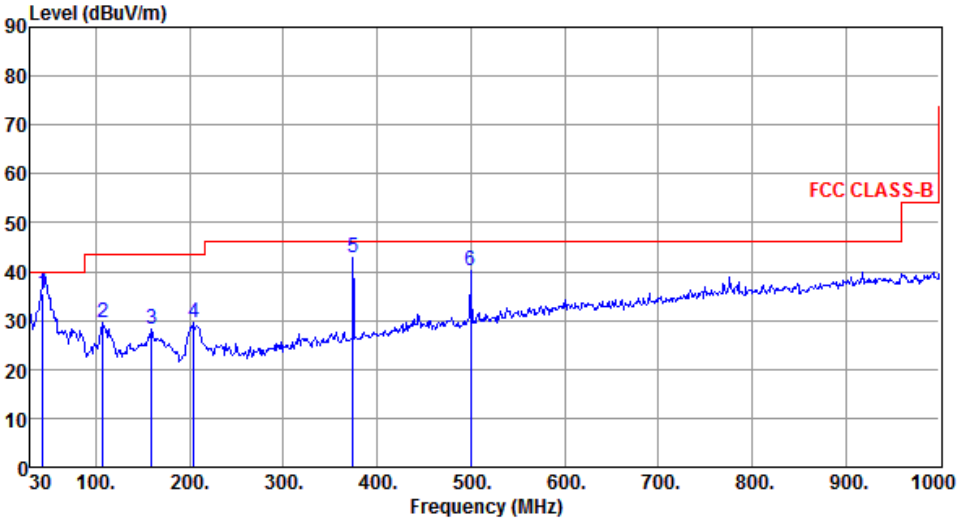
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	27.66	43.50	-15.84	38.35	-10.69	Peak	---	---
2	163.86	31.40	43.50	-12.10	40.19	-8.79	Peak	---	---
3	317.12	30.67	46.00	-15.33	38.37	-7.70	Peak	---	---
4	374.45	42.79	46.00	-3.21	49.05	-6.26	QP	100	183
5	480.08	34.45	46.00	-11.55	37.88	-3.43	Peak	---	---
6	499.48	41.88	46.00	-4.12	44.93	-3.05	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.

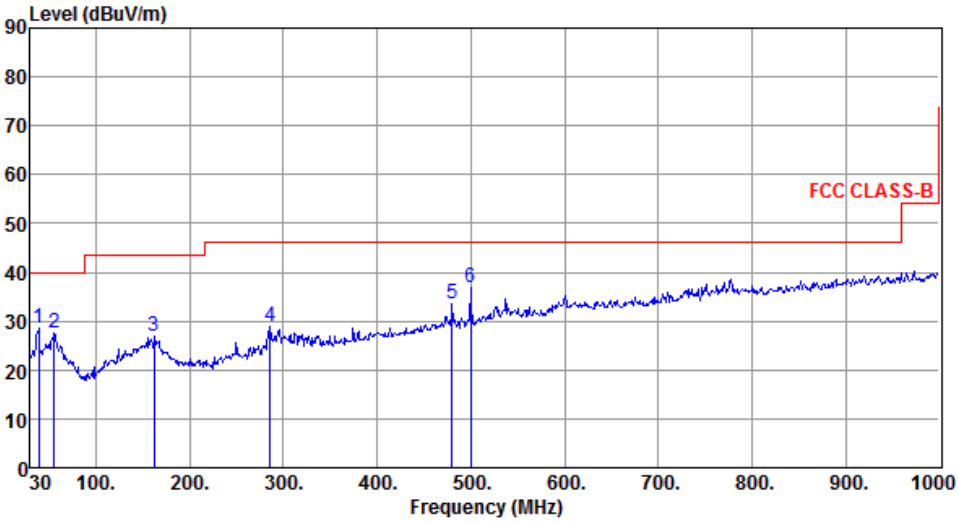
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	43.44	35.64	40.00	-4.36	44.52	-8.88	QP	100	14
2	107.60	29.61	43.50	-13.89	41.99	-12.38	Peak	---	---
3	159.01	28.29	43.50	-15.21	36.81	-8.52	Peak	---	---
4	204.60	29.61	43.50	-13.89	41.66	-12.05	Peak	---	---
5	374.35	42.75	46.00	-3.25	49.02	-6.27	Peak	---	---
6	499.48	40.26	46.00	-5.74	43.31	-3.05	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.

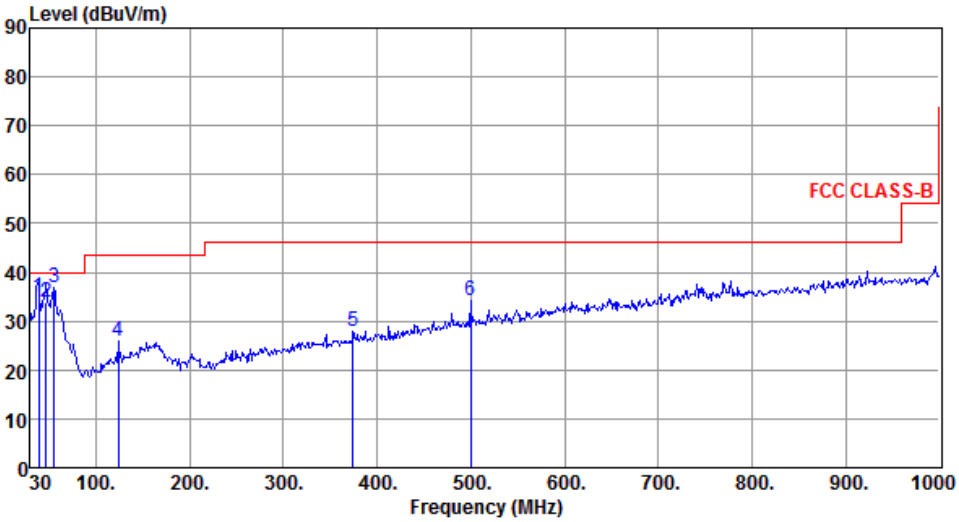
Modulation	11b	**Test Freq. (MHz)**	2412
Polarization	Horizontal	**Test Configuration**	2



	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	28.43	40.00	-11.57	37.76	-9.33	Peak	---	---
2	55.22	27.52	40.00	-12.48	36.43	-8.91	Peak	---	---
3	161.92	26.95	43.50	-16.55	35.66	-8.71	Peak	---	---
4	286.08	28.91	46.00	-17.09	37.58	-8.67	Peak	---	---
5	480.08	33.70	46.00	-12.30	37.13	-3.43	Peak	---	---
6	499.48	36.94	46.00	-9.06	39.99	-3.05	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

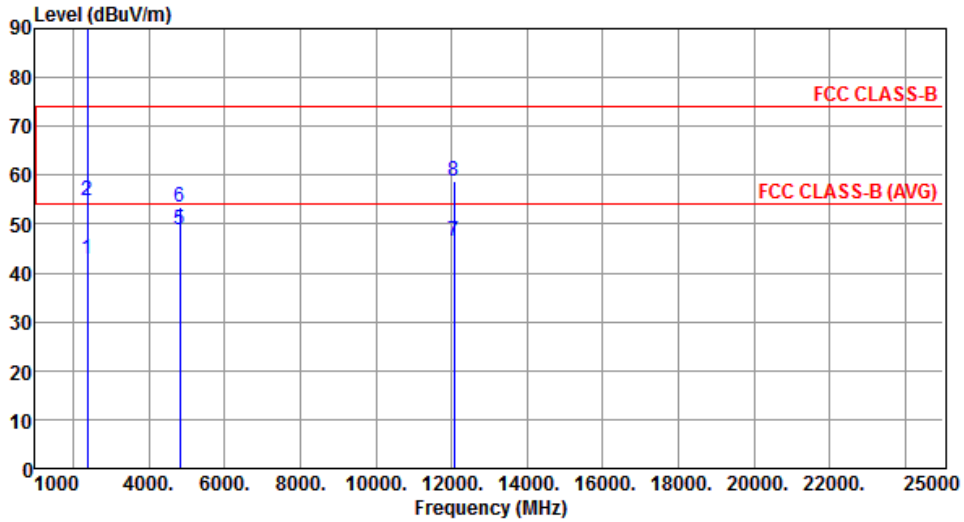


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	38.66	34.92	40.00	-5.08	44.25	-9.33	QP	100	354
2	46.85	33.95	40.00	-6.05	42.59	-8.64	QP	100	355
3	55.22	36.97	40.00	-3.03	45.88	-8.91	Peak	---	---
4	124.09	25.90	43.50	-17.60	36.59	-10.69	Peak	---	---
5	374.35	27.84	46.00	-18.16	34.11	-6.27	Peak	---	---
6	499.48	34.10	46.00	-11.90	37.15	-3.05	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

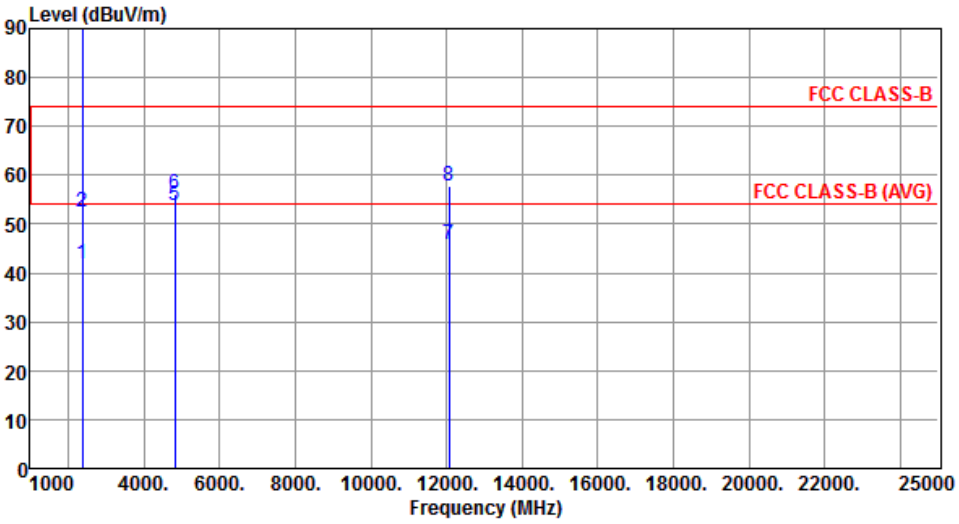
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	42.81	54.00	-11.19	42.57	0.24	Average	101	47
2		2390.00	54.69	74.00	-19.31	54.45	0.24	Peak	101	47
3	*	2412.00	109.88			109.67	0.21	Average	101	47
4	*	2412.00	112.18			111.97	0.21	Peak	101	47
5		4824.00	48.71	54.00	-5.29	42.31	6.40	Average	101	11
6		4824.00	53.35	74.00	-20.65	46.95	6.40	Peak	101	11
7		12060.00	46.41	54.00	-7.59	29.93	16.48	Average	101	7
8		12060.00	58.84	74.00	-15.16	42.36	16.48	Peak	101	7

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

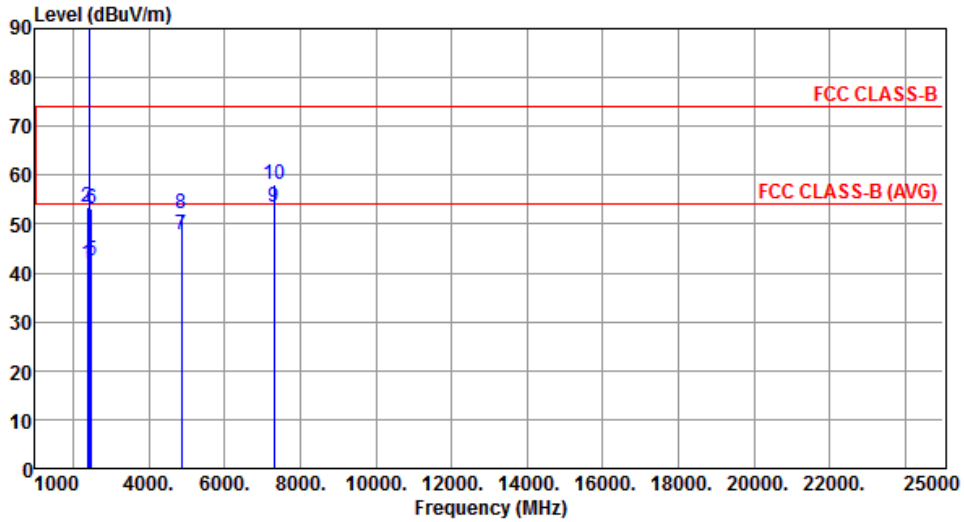
Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical	Test Configuration	1



		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	41.76	54.00	-12.24	41.52	0.24	Average	128	325
2		2390.00	52.33	74.00	-21.67	52.09	0.24	Peak	128	325
3	*	2412.00	109.08			108.87	0.21	Average	128	325
4	*	2412.00	110.57			110.36	0.21	Peak	128	325
5		4824.00	53.64	54.00	-0.36	47.24	6.40	Average	126	40
6		4824.00	56.27	74.00	-17.73	49.87	6.40	Peak	126	40
7		12060.00	45.93	54.00	-8.07	29.45	16.48	Average	100	20
8		12060.00	57.86	74.00	-16.14	41.38	16.48	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

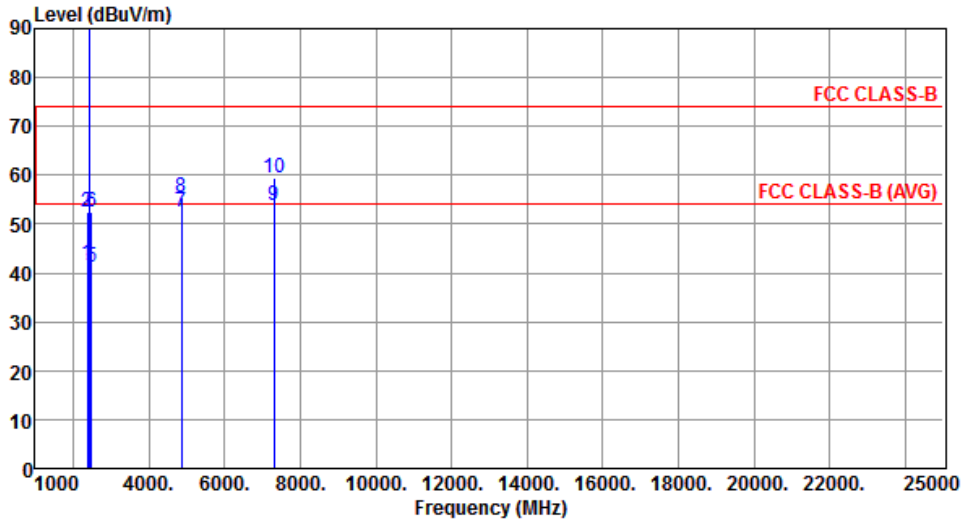
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	41.68	54.00	-12.32	41.44	0.24	Average	100	45
2		2390.00	53.45	74.00	-20.55	53.21	0.24	Peak	100	45
3	*	2437.00	108.73			108.54	0.19	Average	100	45
4	*	2437.00	110.41			110.22	0.19	Peak	101	45
5		2483.50	42.49	54.00	-11.51	42.34	0.15	Average	100	45
6		2483.50	53.00	74.00	-21.00	52.85	0.15	Peak	100	45
7		4874.00	47.85	54.00	-6.15	41.52	6.33	Average	100	10
8		4874.00	52.22	74.00	-21.78	45.89	6.33	Peak	100	10
9		7311.00	53.50	54.00	-0.50	41.84	11.66	Average	230	34
10		7311.00	58.00	74.00	-16.00	46.34	11.66	Peak	230	34

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

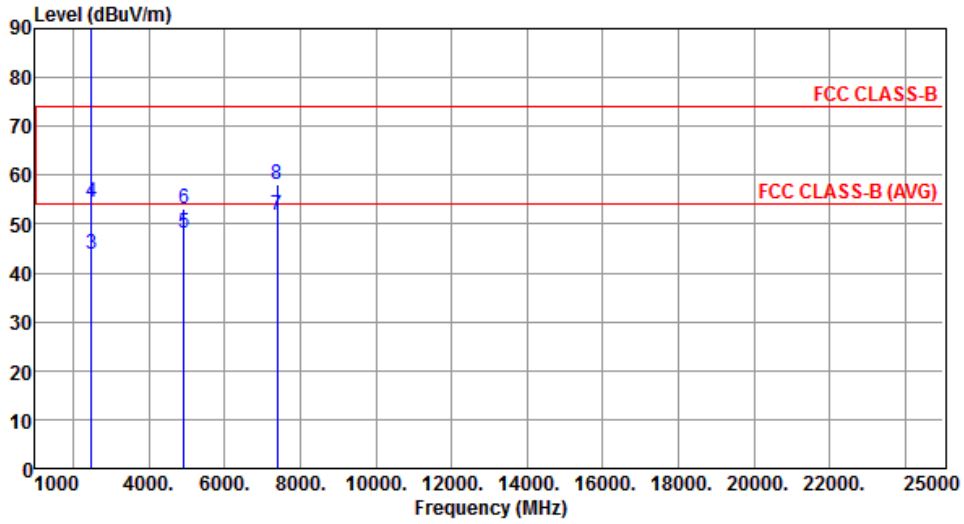
Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical	Test Configuration	1



		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	41.76	54.00	-12.24	41.52	0.24	Average	128	330
2		2390.00	52.54	74.00	-21.46	52.30	0.24	Peak	128	330
3	*	2437.00	107.88			107.69	0.19	Average	128	330
4	*	2437.00	109.85			109.66	0.19	Peak	128	330
5		2483.50	41.33	54.00	-12.67	41.18	0.15	Average	128	330
6		2483.50	52.33	74.00	-21.67	52.18	0.15	Peak	128	330
7		4874.00	52.32	54.00	-1.68	45.99	6.33	Average	117	47
8		4874.00	55.55	74.00	-18.45	49.22	6.33	Peak	117	47
9		7311.00	53.74	54.00	-0.26	42.08	11.66	Average	137	32
10		7311.00	59.52	74.00	-14.48	47.86	11.66	Peak	137	32

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

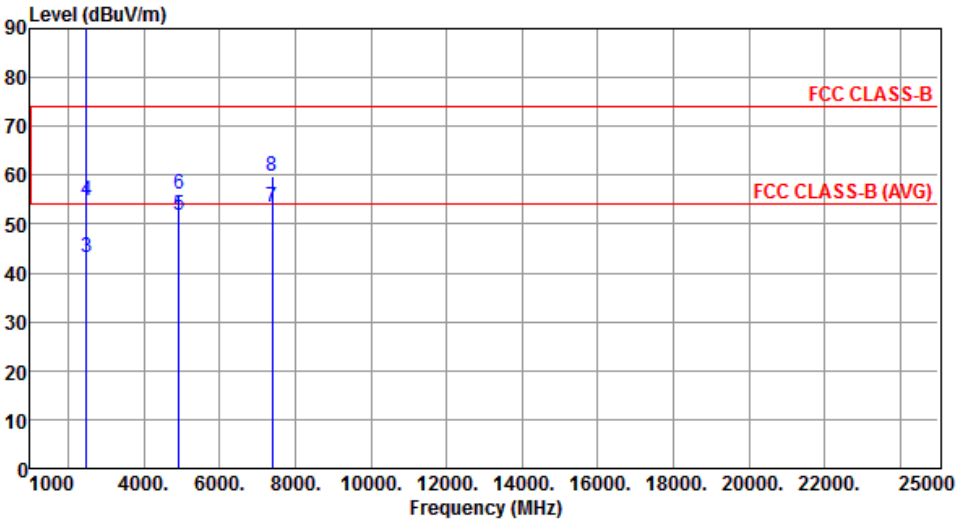
Modulation	11b	**Test Freq. (MHz)**	2462
Polarization	Horizontal	**Test Configuration**	1



		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	108.50			108.33	0.17	Average	100	52
2	*	2462.00	111.03			110.86	0.17	Peak	100	52
3		2483.50	43.89	54.00	-10.11	43.74	0.15	Average	100	52
4		2483.50	54.56	74.00	-19.44	54.41	0.15	Peak	100	52
5		4924.00	48.32	54.00	-5.68	41.87	6.45	Average	100	8
6		4924.00	52.98	74.00	-21.02	46.53	6.45	Peak	100	8
7		7386.00	51.94	54.00	-2.06	40.30	11.64	Average	235	35
8		7386.00	58.25	74.00	-15.75	46.61	11.64	Peak	235	35

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

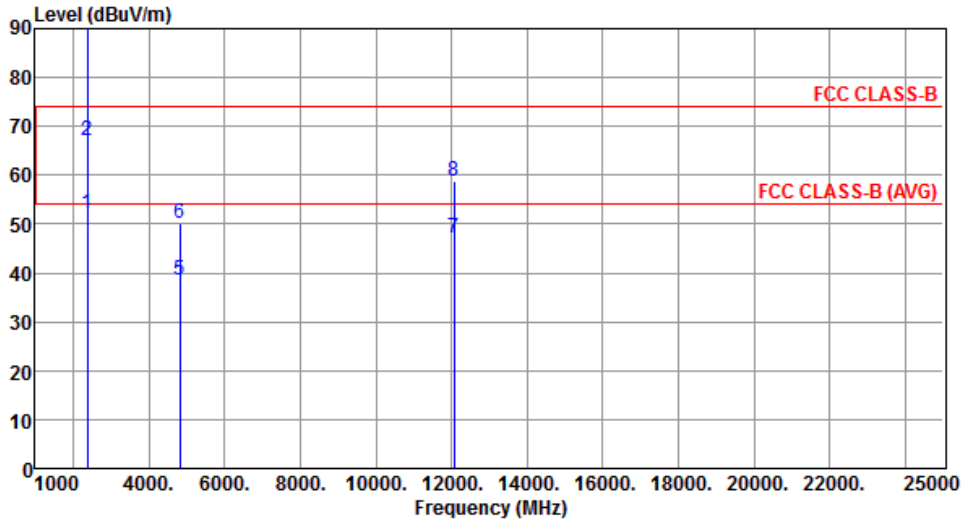


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	107.67			107.50	0.17	Average	122	319
2	*	2462.00	110.28			110.11	0.17	Peak	122	319
3		2483.50	43.32	54.00	-10.68	43.17	0.15	Average	122	319
4		2483.50	54.76	74.00	-19.24	54.61	0.15	Peak	122	319
5		4924.00	51.75	54.00	-2.25	45.30	6.45	Average	111	44
6		4924.00	56.10	74.00	-17.90	49.65	6.45	Peak	111	44
7		7386.00	53.54	54.00	-0.46	41.90	11.64	Average	129	25
8		7386.00	59.90	74.00	-14.10	48.26	11.64	Peak	129	25

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3:"*" is Peak / Average value of fundamental frequency

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

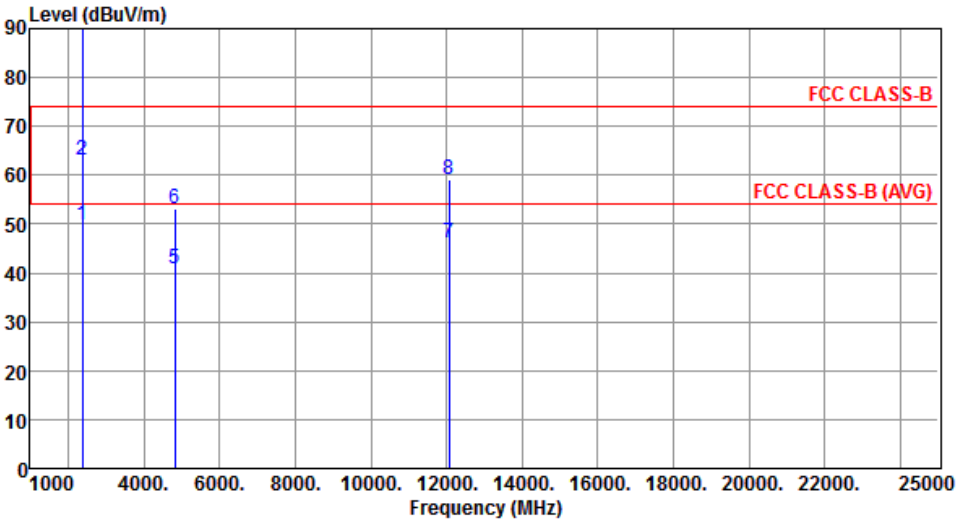
Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	51.98	54.00	-2.02	51.74	0.24	Average	115	8
2		2390.00	67.18	74.00	-6.82	66.94	0.24	Peak	115	8
3	*	2412.00	104.38			104.17	0.21	Average	115	8
4	*	2412.00	114.13			113.92	0.21	Peak	115	8
5		4824.00	38.64	54.00	-15.36	32.24	6.40	Average	100	16
6		4824.00	50.29	74.00	-23.71	43.89	6.40	Peak	100	16
7		12060.00	47.00	54.00	-7.00	30.52	16.48	Average	100	14
8		12060.00	58.78	74.00	-15.22	42.30	16.48	Peak	100	14

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

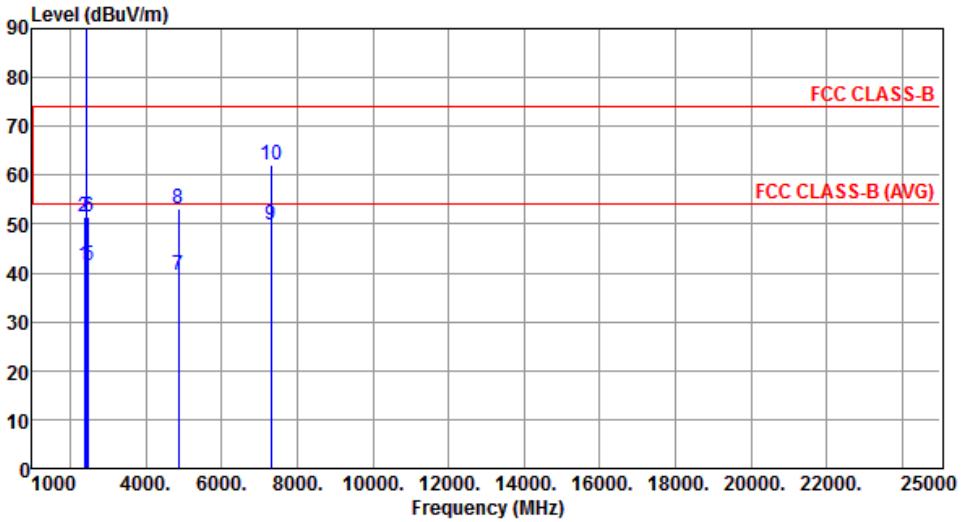
Modulation	11g	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



		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	49.89	54.00	-4.11	49.65	0.24	Average	123	13
2		2390.00	62.95	74.00	-11.05	62.71	0.24	Peak	123	13
3	*	2412.00	103.75			103.54	0.21	Average	123	13
4	*	2412.00	112.74			112.53	0.21	Peak	123	13
5		4824.00	40.81	54.00	-13.19	34.41	6.40	Average	156	41
6		4824.00	53.02	74.00	-20.98	46.62	6.40	Peak	156	41
7		12060.00	46.14	54.00	-7.86	29.66	16.48	Average	100	25
8		12060.00	59.11	74.00	-14.89	42.63	16.48	Peak	100	25

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3:"*" is Peak / Average value of fundamental frequency

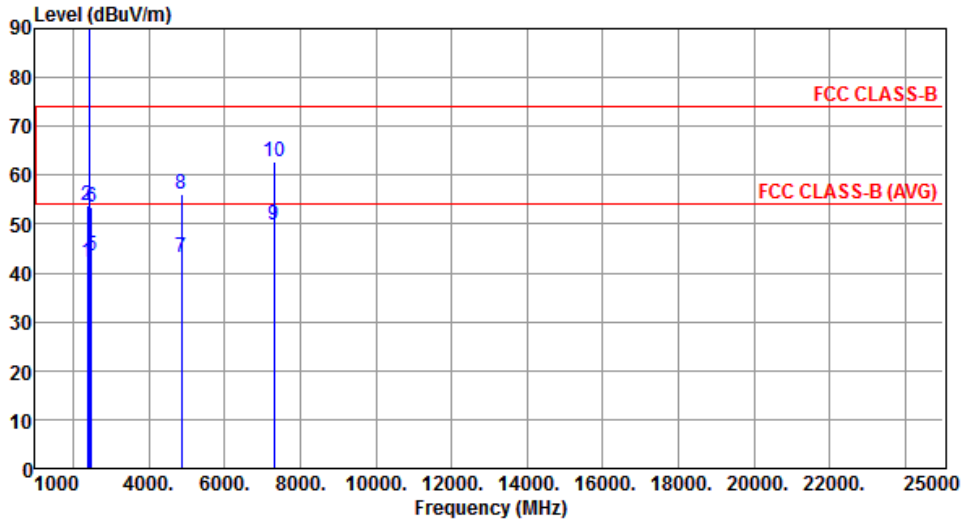
Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	41.57	54.00	-12.43	41.33	0.24	Average	100	1
2		2390.00	51.63	74.00	-22.37	51.39	0.24	Peak	100	1
3	*	2437.00	104.86			104.67	0.19	Average	100	1
4	*	2437.00	114.80			114.61	0.19	Peak	100	1
5		2483.50	41.39	54.00	-12.61	41.24	0.15	Average	100	1
6		2483.50	51.55	74.00	-22.45	51.40	0.15	Peak	100	1
7		4874.00	39.54	54.00	-14.46	33.21	6.33	Average	100	15
8		4874.00	53.19	74.00	-20.81	46.86	6.33	Peak	100	15
9		7311.00	49.66	54.00	-4.34	38.00	11.66	Average	246	35
10		7311.00	62.03	74.00	-11.97	50.37	11.66	Peak	246	35

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

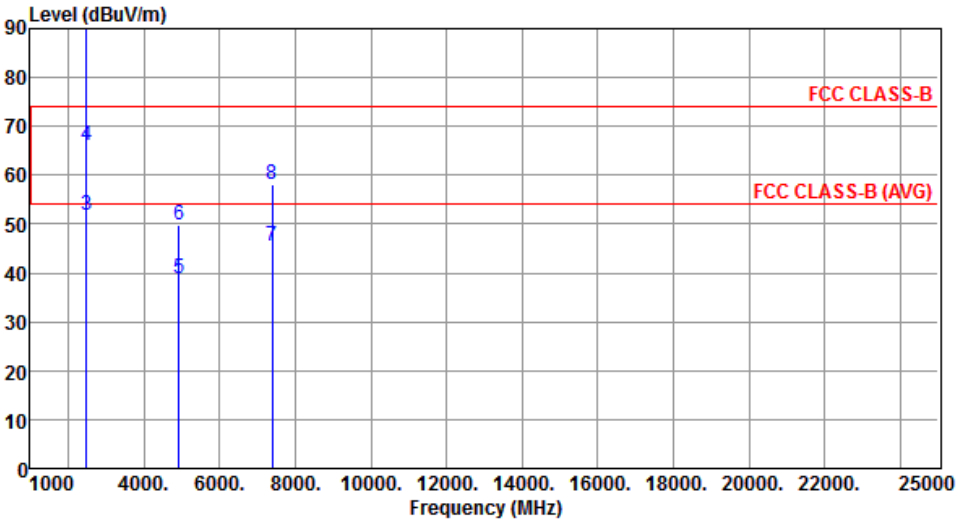
Modulation	11g	**Test Freq. (MHz)**	2437
Polarization	Vertical	**Test Configuration**	1



		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	42.09	54.00	-11.91	41.85	0.24	Average	100	19
2		2390.00	53.87	74.00	-20.13	53.63	0.24	Peak	100	19
3	*	2437.00	104.78			104.59	0.19	Average	100	19
4	*	2437.00	113.65			113.46	0.19	Peak	100	19
5		2483.50	43.67	54.00	-10.33	43.52	0.15	Average	100	19
6		2483.50	53.49	74.00	-20.51	53.34	0.15	Peak	100	19
7		4874.00	43.21	54.00	-10.79	36.88	6.33	Average	115	44
8		4874.00	56.15	74.00	-17.85	49.82	6.33	Peak	115	44
9		7311.00	49.85	54.00	-4.15	38.19	11.66	Average	169	31
10		7311.00	62.71	74.00	-11.29	51.05	11.66	Peak	169	31

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3:"*" is Peak / Average value of fundamental frequency

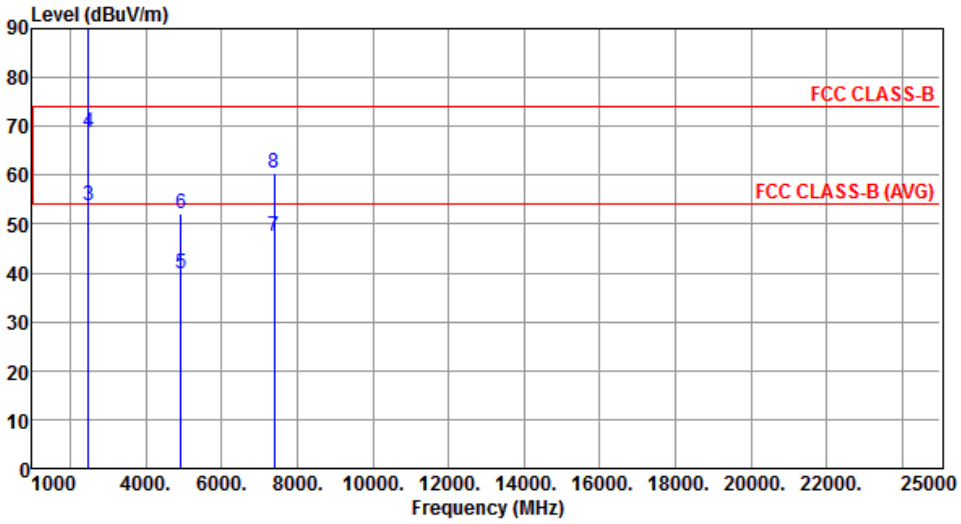
Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal	Test Configuration	1



		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	104.64			104.47	0.17	Average	100	1
2	*	2462.00	114.23			114.06	0.17	Peak	100	1
3		2483.50	51.88	54.00	-2.12	51.73	0.15	Average	100	47
4		2483.50	66.23	74.00	-7.77	66.08	0.15	Peak	100	47
5		4924.00	39.00	54.00	-15.00	32.55	6.45	Average	100	19
6		4924.00	49.98	74.00	-24.02	43.53	6.45	Peak	100	19
7		7386.00	45.59	54.00	-8.41	33.95	11.64	Average	237	32
8		7386.00	58.00	74.00	-16.00	46.36	11.64	Peak	237	32

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

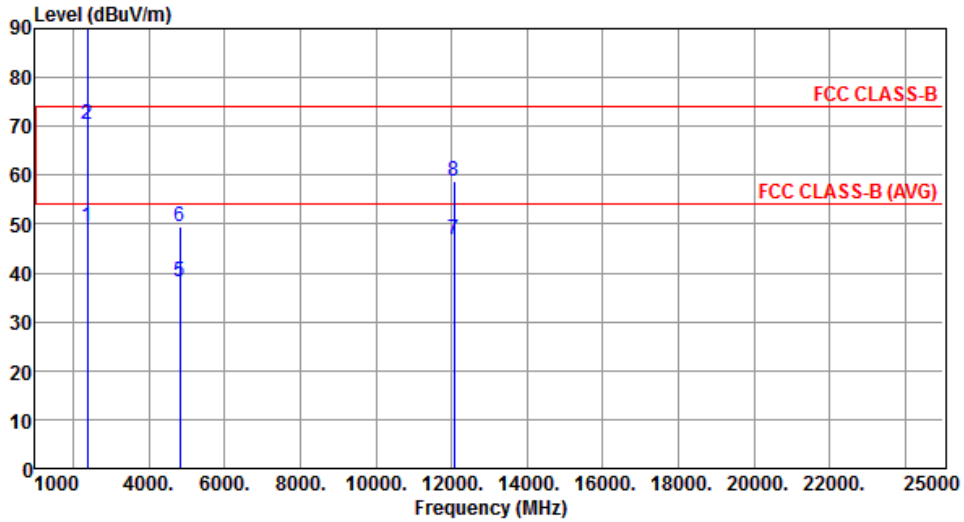


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	104.36			104.19	0.17	Average	100	7
2	*	2462.00	113.67			113.50	0.17	Peak	100	7
3		2483.50	53.71	54.00	-0.29	53.56	0.15	Average	100	7
4		2483.50	68.71	74.00	-5.29	68.56	0.15	Peak	100	7
5		4924.00	40.00	54.00	-14.00	33.55	6.45	Average	108	42
6		4924.00	52.30	74.00	-21.70	45.85	6.45	Peak	108	42
7		7386.00	47.33	54.00	-6.67	35.69	11.64	Average	169	21
8		7386.00	60.57	74.00	-13.43	48.93	11.64	Peak	169	21

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3:"*" is Peak / Average value of fundamental frequency

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

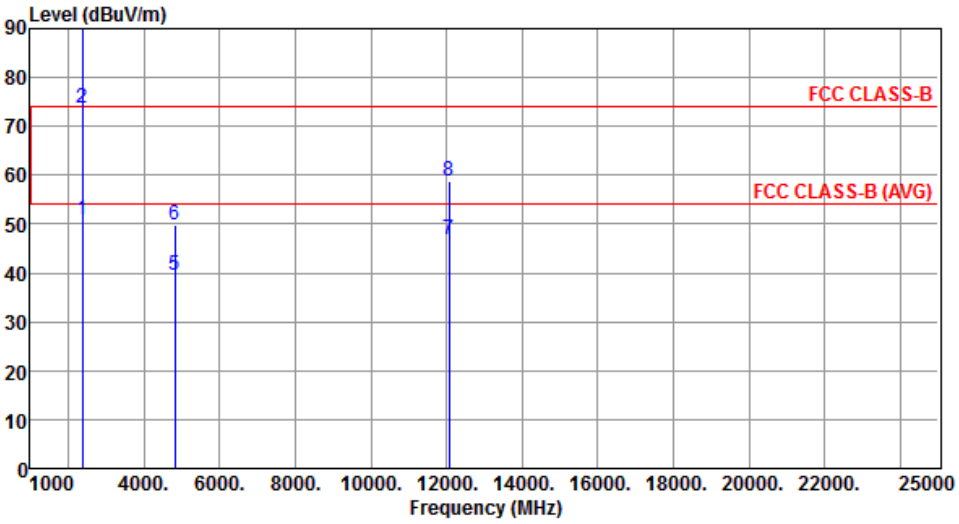
Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Horizontal	Test Configuration	1



		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	49.53	54.00	-4.47	49.29	0.24	Average	100	331
2		2390.00	70.39	74.00	-3.61	70.15	0.24	Peak	100	331
3	*	2412.00	101.92			101.71	0.21	Average	141	11
4	*	2412.00	112.76			112.55	0.21	Peak	141	11
5		4824.00	38.35	54.00	-15.65	31.95	6.40	Average	100	17
6		4824.00	49.64	74.00	-24.36	43.24	6.40	Peak	100	17
7		12060.00	46.76	54.00	-7.24	30.28	16.48	Average	100	18
8		12060.00	58.65	74.00	-15.35	42.17	16.48	Peak	100	18

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

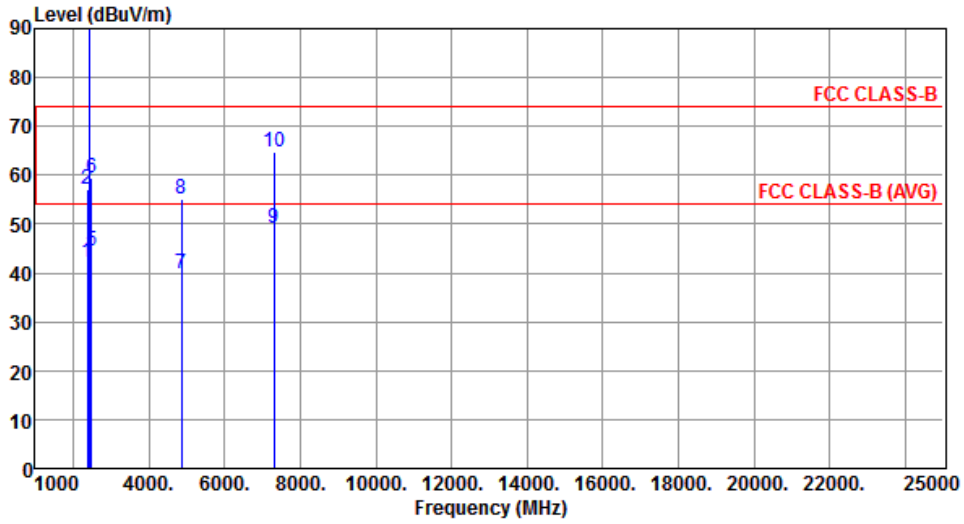
Modulation	ax HE20	**Test Freq. (MHz)**	2412
Polarization	Vertical	**Test Configuration**	1



		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	50.96	54.00	-3.04	50.72	0.24	Average	129	17
2		2390.00	73.65	74.00	-0.35	73.41	0.24	Peak	129	17
3	*	2412.00	100.66			100.45	0.21	Average	129	17
4	*	2412.00	111.02			110.81	0.21	Peak	129	17
5		4824.00	39.47	54.00	-14.53	33.07	6.40	Average	100	43
6		4824.00	49.78	74.00	-24.22	43.38	6.40	Peak	100	43
7		12060.00	46.77	54.00	-7.23	30.29	16.48	Average	100	18
8		12060.00	58.81	74.00	-15.19	42.33	16.48	Peak	100	18

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

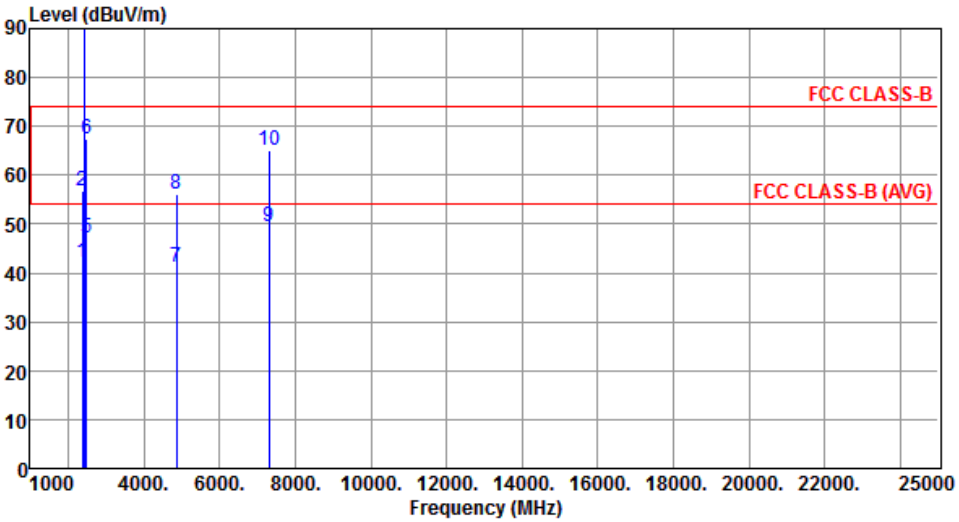
Modulation	ax HE20	**Test Freq. (MHz)**	2437
Polarization	Horizontal	**Test Configuration**	1



		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	42.28	54.00	-11.72	42.04	0.24	Average	100	357
2		2390.00	57.17	74.00	-16.83	56.93	0.24	Peak	100	357
3	*	2437.00	104.27			104.08	0.19	Average	100	357
4	*	2437.00	114.86			114.67	0.19	Peak	100	357
5		2483.50	44.49	54.00	-9.51	44.34	0.15	Average	100	357
6		2483.50	59.50	74.00	-14.50	59.35	0.15	Peak	100	357
7		4874.00	39.72	54.00	-14.28	33.39	6.33	Average	100	16
8		4874.00	55.02	74.00	-18.98	48.69	6.33	Peak	100	16
9		7311.00	49.19	54.00	-4.81	37.53	11.66	Average	203	31
10		7311.00	64.90	74.00	-9.10	53.24	11.66	Peak	203	31

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3:"*" is Peak / Average value of fundamental frequency

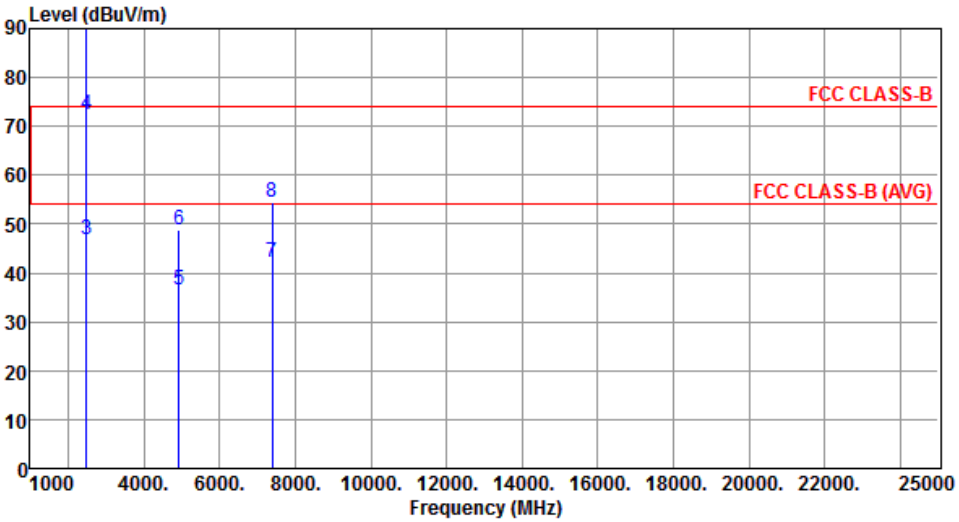
Modulation	ax HE20	**Test Freq. (MHz)**	2437
Polarization	Vertical	**Test Configuration**	1



		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	42.03	54.00	-11.97	41.79	0.24	Average	100	17
2		2390.00	56.87	74.00	-17.13	56.63	0.24	Peak	100	17
3	*	2437.00	103.91			103.72	0.19	Average	100	17
4	*	2437.00	113.48			113.29	0.19	Peak	100	17
5		2483.50	47.11	54.00	-6.89	46.96	0.15	Average	100	17
6		2483.50	67.38	74.00	-6.62	67.23	0.15	Peak	100	17
7		4874.00	41.20	54.00	-12.80	34.87	6.33	Average	100	43
8		4874.00	56.16	74.00	-17.84	49.83	6.33	Peak	100	43
9		7311.00	49.45	54.00	-4.55	37.79	11.66	Average	100	308
10		7311.00	65.24	74.00	-8.76	53.58	11.66	Peak	100	308

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

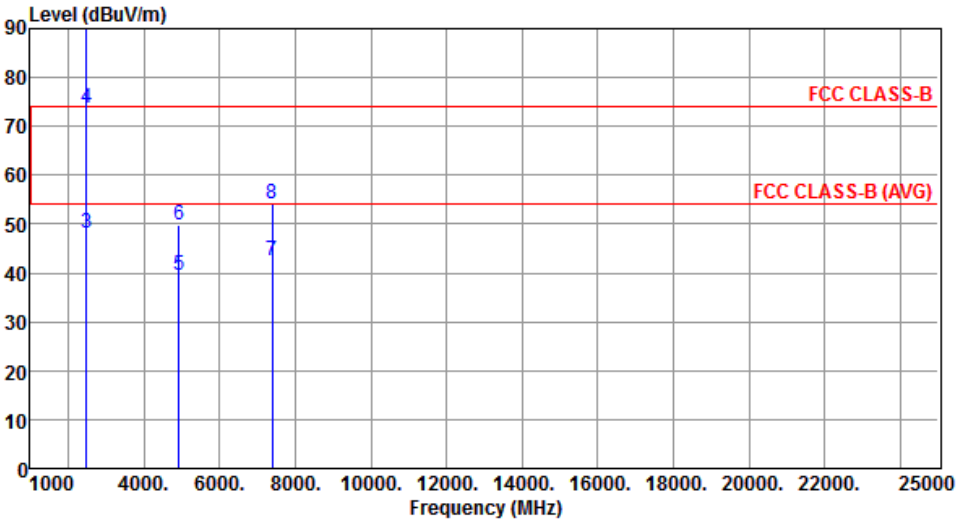
Modulation	ax HE20	Test Freq. (MHz)	2462
Polarization	Horizontal	Test Configuration	1



		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	99.42			99.25	0.17	Average	100	2
2	*	2462.00	111.89			111.72	0.17	Peak	100	2
3		2483.50	46.90	54.00	-7.10	46.75	0.15	Average	100	2
4		2483.50	72.52	74.00	-1.48	72.37	0.15	Peak	100	2
5		4924.00	36.68	54.00	-17.32	30.23	6.45	Average	100	14
6		4924.00	48.71	74.00	-25.29	42.26	6.45	Peak	100	14
7		7386.00	42.22	54.00	-11.78	30.58	11.64	Average	250	45
8		7386.00	54.30	74.00	-19.70	42.66	11.64	Peak	250	45

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

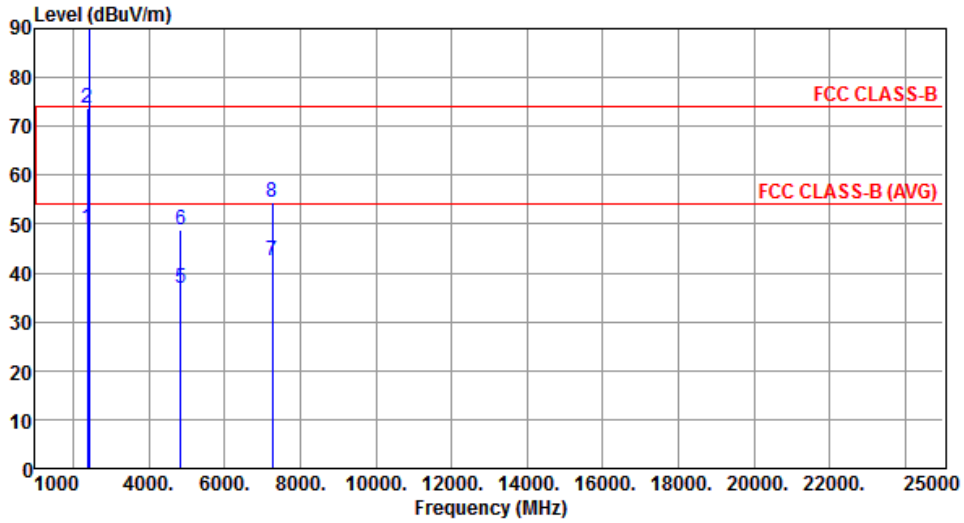


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	*	2462.00	98.04			97.87	0.17	Average	100	19
2	*	2462.00	111.38			111.21	0.17	Peak	100	19
3		2483.50	48.09	54.00	-5.91	47.94	0.15	Average	100	19
4		2483.50	73.85	74.00	-0.15	73.70	0.15	Peak	100	19
5		4924.00	39.41	54.00	-14.59	32.96	6.45	Average	100	21
6		4924.00	49.71	74.00	-24.29	43.26	6.45	Peak	100	21
7		7386.00	42.53	54.00	-11.47	30.89	11.64	Average	100	304
8		7386.00	54.22	74.00	-19.78	42.58	11.64	Peak	100	304

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

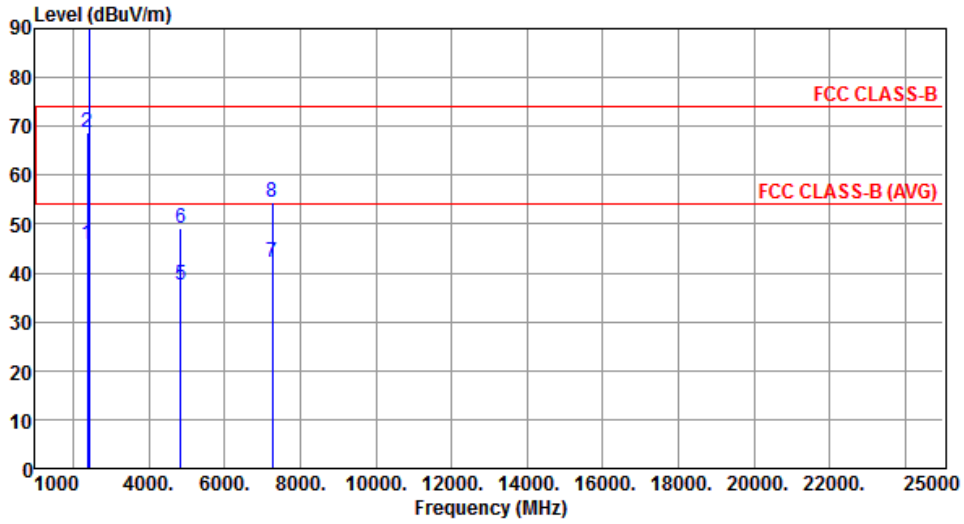
Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Horizontal	Test Configuration	1



		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	49.24	54.00	-4.76	49.00	0.24	Average	137	6
2		2390.00	73.60	74.00	-0.40	73.36	0.24	Peak	137	6
3	*	2422.00	99.63			99.42	0.21	Average	137	6
4	*	2422.00	110.52			110.31	0.21	Peak	137	6
5		4844.00	36.93	54.00	-17.07	30.56	6.37	Average	100	19
6		4844.00	48.73	74.00	-25.27	42.36	6.37	Peak	100	19
7		7266.00	42.43	54.00	-11.57	30.85	11.58	Average	100	39
8		7266.00	54.40	74.00	-19.60	42.82	11.58	Peak	100	39

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

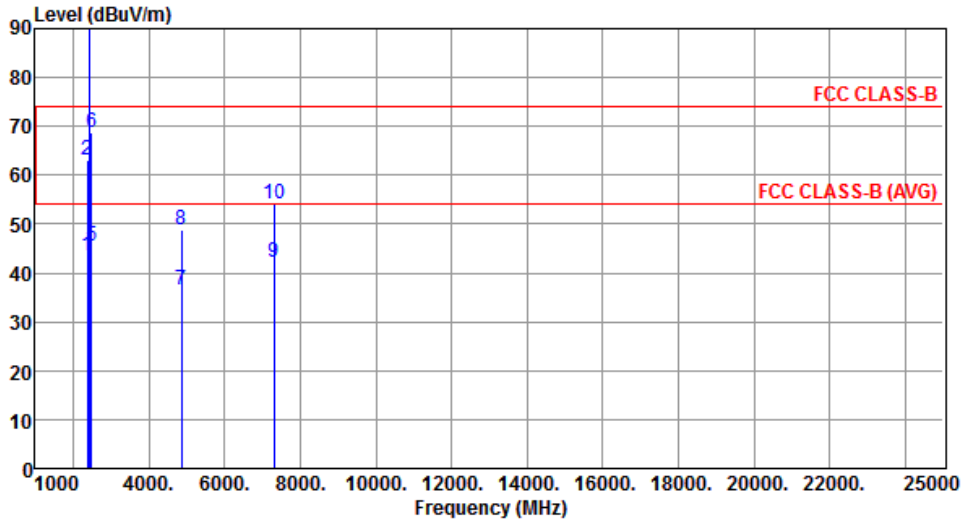
Modulation	ax HE40	**Test Freq. (MHz)**	2422
Polarization	Vertical	**Test Configuration**	1



		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	45.83	54.00	-8.17	45.59	0.24	Average	164	13
2		2390.00	68.89	74.00	-5.11	68.65	0.24	Peak	164	13
3	*	2422.00	98.45			98.24	0.21	Average	164	13
4	*	2422.00	109.65			109.44	0.21	Peak	164	13
5		4844.00	37.62	54.00	-16.38	31.25	6.37	Average	100	24
6		4844.00	49.30	74.00	-24.70	42.93	6.37	Peak	100	24
7		7266.00	42.21	54.00	-11.79	30.63	11.58	Average	100	304
8		7266.00	54.46	74.00	-19.54	42.88	11.58	Peak	100	304

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

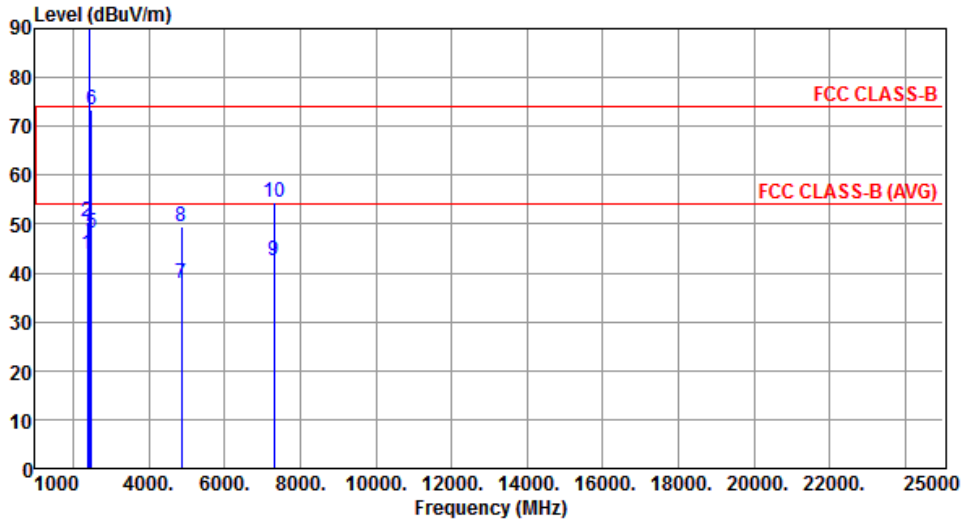
Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Horizontal	Test Configuration	1



		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	43.62	54.00	-10.38	43.38	0.24	Average	139	9
2		2390.00	63.04	74.00	-10.96	62.80	0.24	Peak	139	9
3	*	2437.00	98.98			98.79	0.19	Average	139	9
4	*	2437.00	109.93			109.74	0.19	Peak	139	9
5		2483.50	45.40	54.00	-8.60	45.25	0.15	Average	139	9
6		2483.50	68.67	74.00	-5.33	68.52	0.15	Peak	139	9
7		4874.00	36.57	54.00	-17.43	30.24	6.33	Average	100	17
8		4874.00	48.69	74.00	-25.31	42.36	6.33	Peak	100	17
9		7311.00	42.21	54.00	-11.79	30.55	11.66	Average	100	38
10		7311.00	54.13	74.00	-19.87	42.47	11.66	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

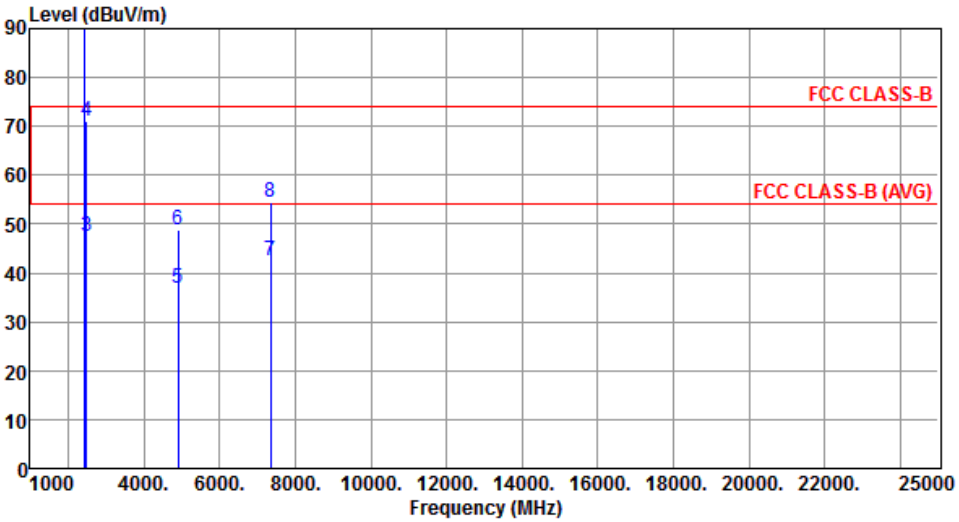
Modulation	ax HE40	**Test Freq. (MHz)**	2437
Polarization	Vertical	**Test Configuration**	1



		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	43.67	54.00	-10.33	43.43	0.24	Average	129	16
2		2390.00	50.33	74.00	-23.67	50.09	0.24	Peak	129	16
3	*	2437.00	98.58			98.39	0.19	Average	129	16
4	*	2437.00	110.78			110.59	0.19	Peak	129	16
5		2483.50	48.28	54.00	-5.72	48.13	0.15	Average	129	16
6		2483.50	73.50	74.00	-0.50	73.35	0.15	Peak	129	16
7		4874.00	37.86	54.00	-16.14	31.53	6.33	Average	100	29
8		4874.00	49.54	74.00	-24.46	43.21	6.33	Peak	100	29
9		7311.00	42.49	54.00	-11.51	30.83	11.66	Average	100	307
10		7311.00	54.54	74.00	-19.46	42.88	11.66	Peak	100	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

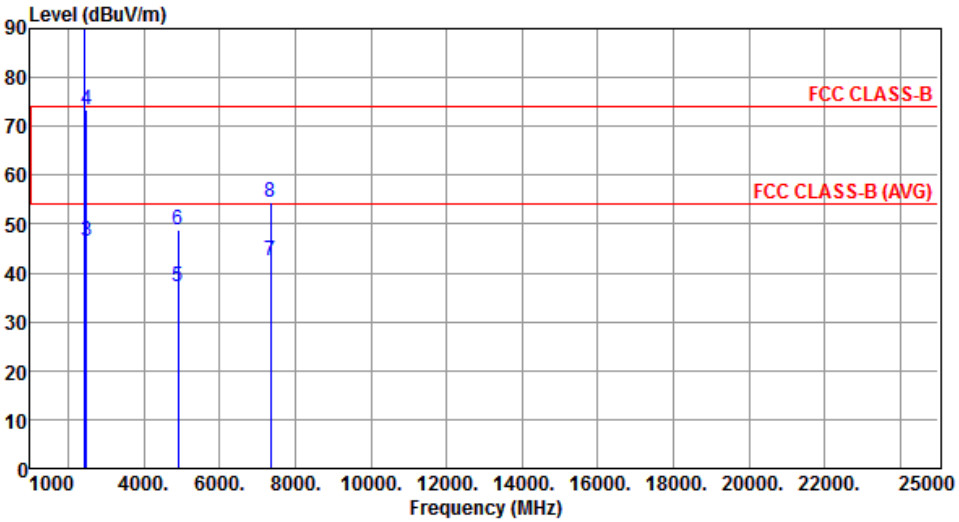
Modulation	ax HE40	Test Freq. (MHz)	2452
Polarization	Horizontal	Test Configuration	1



		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	97.27			97.09	0.18	Average	100	1
2	*	2452.00	110.01			109.83	0.18	Peak	100	1
3		2483.50	47.42	54.00	-6.58	47.27	0.15	Average	100	1
4		2483.50	71.06	74.00	-2.94	70.91	0.15	Peak	100	1
5		4904.00	36.73	54.00	-17.27	30.41	6.32	Average	100	14
6		4904.00	48.71	74.00	-25.29	42.39	6.32	Peak	100	14
7		7356.00	42.45	54.00	-11.55	30.74	11.71	Average	100	37
8		7356.00	54.42	74.00	-19.58	42.71	11.71	Peak	100	37

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	96.79			96.61	0.18	Average	115	19
2	*	2452.00	108.38			108.20	0.18	Peak	115	19
3		2483.50	46.47	54.00	-7.53	46.32	0.15	Average	115	19
4		2483.50	73.51	74.00	-0.49	73.36	0.15	Peak	115	19
5		4904.00	37.06	54.00	-16.94	30.74	6.32	Average	100	23
6		4904.00	48.90	74.00	-25.10	42.58	6.32	Peak	100	23
7		7356.00	42.48	54.00	-11.52	30.77	11.71	Average	100	302
8		7356.00	54.51	74.00	-19.49	42.80	11.71	Peak	100	302

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

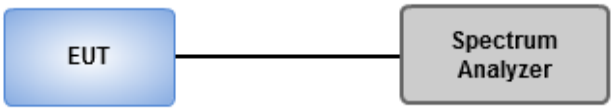
Reference level measurement

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

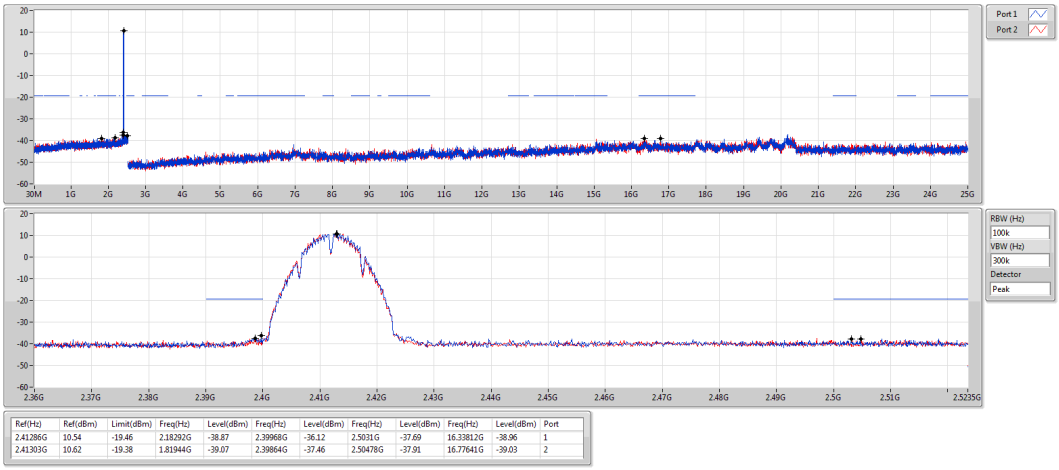
3.6.3 Test Setup



3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

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

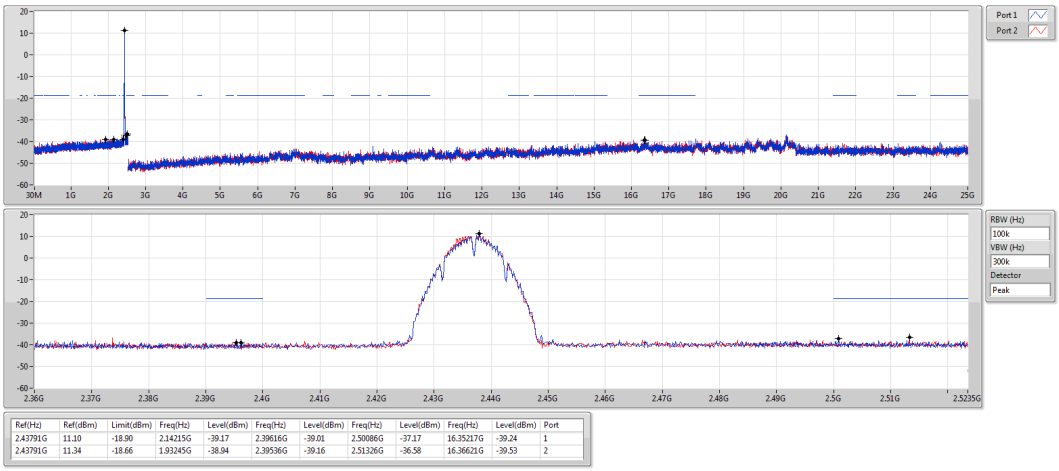
2412MHz



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	10.54	-19.46	2.18292G	-38.87	2.39968G	-36.12	2.5031G	-37.69	16.33812G	-38.96	1
2.41303G	10.62	-19.38	1.81944G	-39.07	2.39864G	-37.46	2.50478G	-37.91	16.77641G	-39.03	2

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

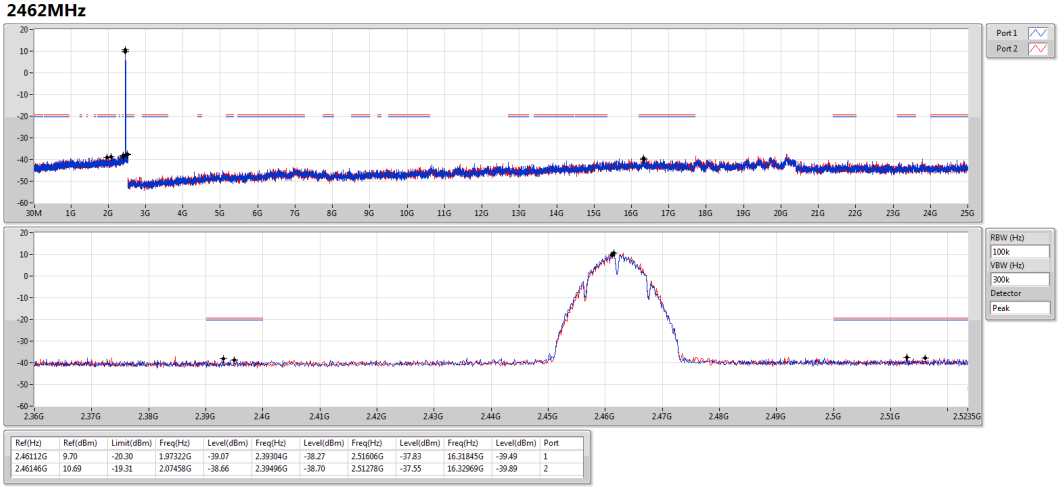
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43791G	11.10	-18.90	2.14215G	-39.17	2.39616G	-39.01	2.50086G	-37.17	16.35217G	-39.24	1
2.43791G	11.34	-18.66	1.93245G	-38.94	2.39536G	-39.16	2.51326G	-36.58	16.36621G	-39.53	2

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

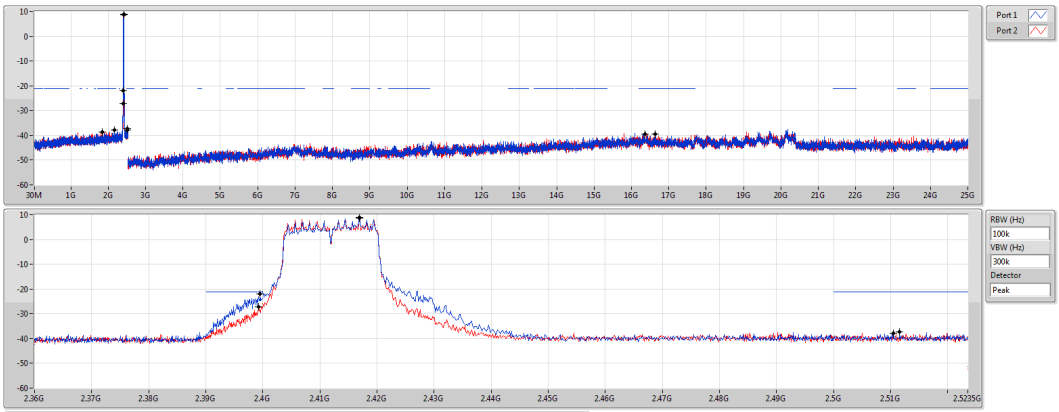
2462MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.46112G	9.70	-20.30	1.97322G	-39.07	2.39304G	-38.27	2.51606G	-37.83	16.31845G	-39.49	1
2.46146G	10.69	-19.31	2.07458G	-38.66	2.39496G	-38.70	2.51278G	-37.55	16.32969G	-39.89	2

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

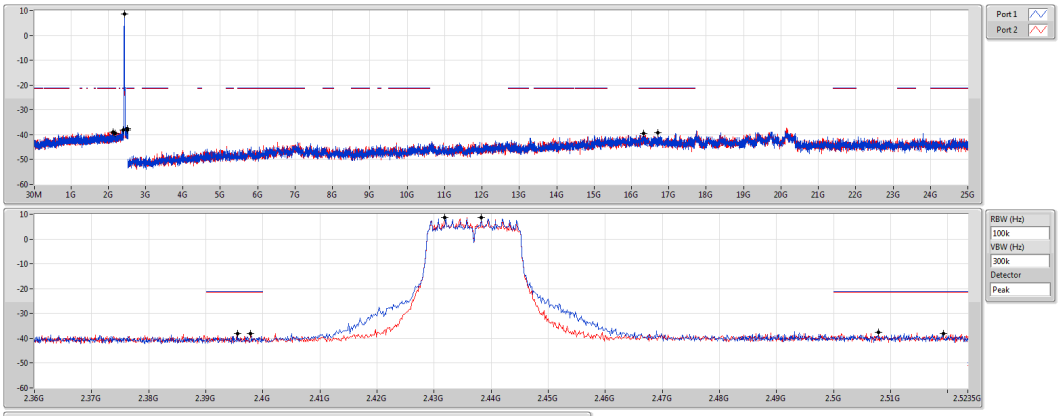
2412MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.41687G	8.78	-21.22	2.16312G	-37.88	2.39952G	-22.11	2.51158G	-37.19	16.63031G	-39.47	1
2.41687G	8.76	-21.24	1.84391G	-38.61	2.39928G	-27.16	2.51046G	-37.89	16.3606G	-39.58	2

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

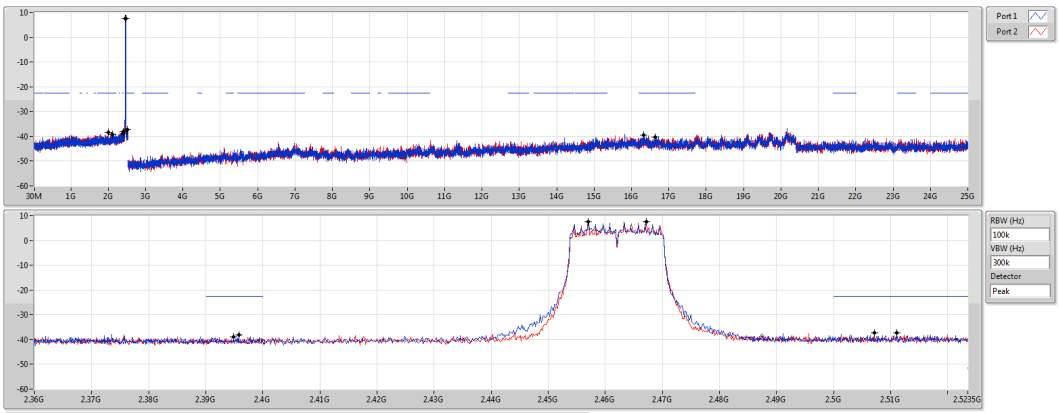
2437MHz



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	8.72	-21.28	2.19341G	-39.39	2.39552G	-38.25	2.51918G	-38.05	16.70055G	-39.12	1
2.4319G	8.67	-21.33	2.12467G	-38.94	2.39784G	-38.08	2.5079G	-37.54	16.3325G	-39.42	2

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

2462MHz

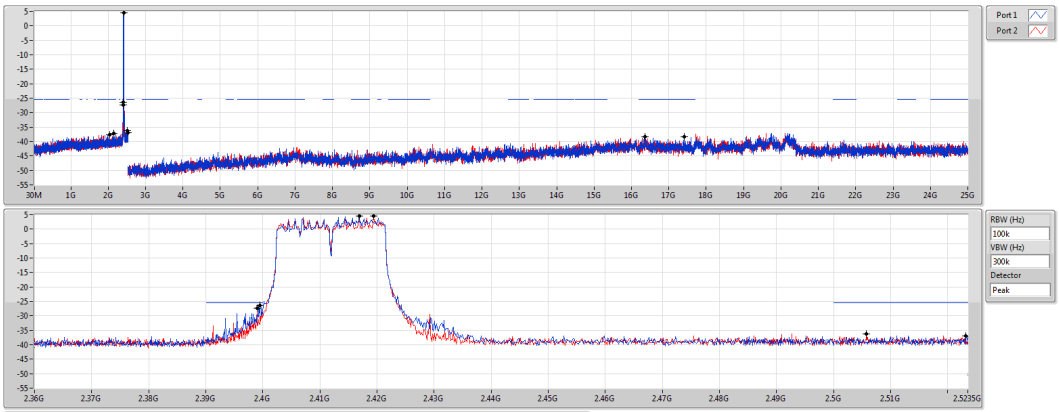


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.45695G	7.58	-22.42	2.11419G	-39.19	2.39576G	-38.14	2.5111G	-37.25	16.32407G	-39.49	1
2.46713G	7.49	-22.51	1.99769G	-38.32	2.39488G	-38.88	2.5071G	-37.23	16.6275G	-40.27	2

The previous version of the test report has been cancelled and replaced by new version.

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

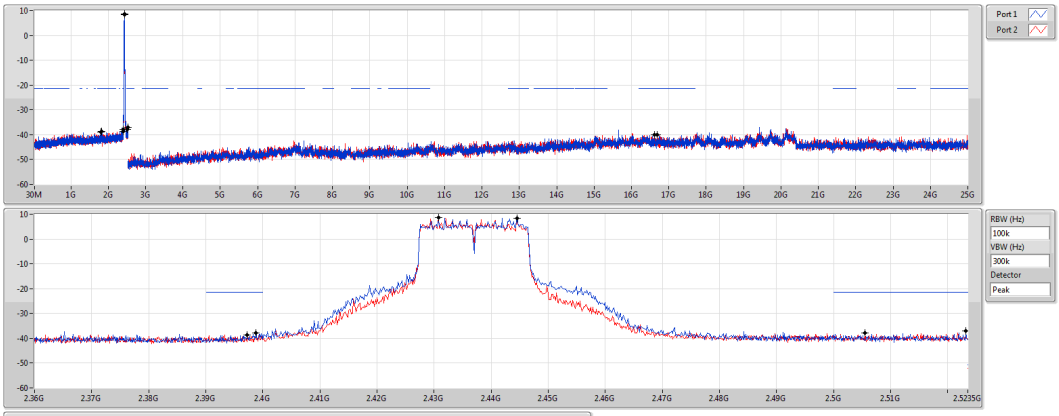
2412MHz



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	4.61	-25.39	2.04895G	-37.54	2.39952G	-26.36	2.52318G	-36.88	17.41418G	-38.31	1
2.41937G	4.59	-25.41	2.1538G	-37.20	2.39896G	-27.28	2.50574G	-36.24	16.35779G	-38.36	2

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

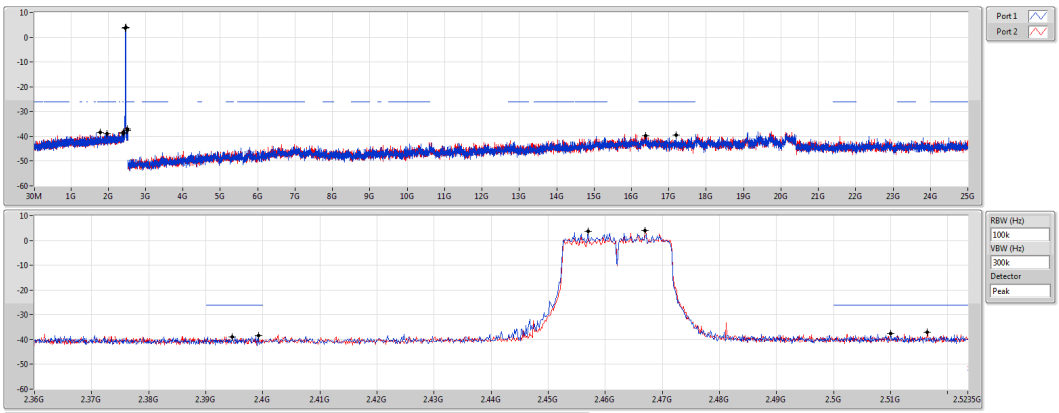
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44459G	8.46	-21.54	1.79731G	-38.86	2.3988G	-37.87	2.52318G	-36.99	16.62188G	-40.00	1
2.43073G	8.51	-21.49	1.81828G	-38.56	2.39728G	-38.54	2.5055G	-37.80	16.69493G	-40.12	2

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

2462MHz

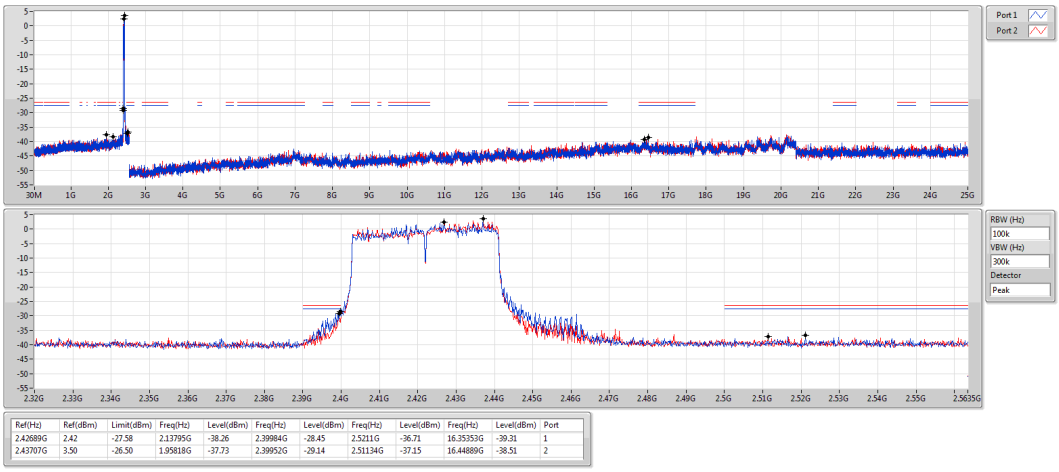


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.45695G	3.79	-26.21	1.78566G	-38.53	2.3992G	-38.52	2.50998G	-37.69	17.19784G	-39.55	1
2.46697G	3.98	-26.02	1.96157G	-38.99	2.39464G	-38.81	2.51638G	-37.10	16.37745G	-39.81	2

The previous version of the test report has been cancelled and replaced by new version.

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

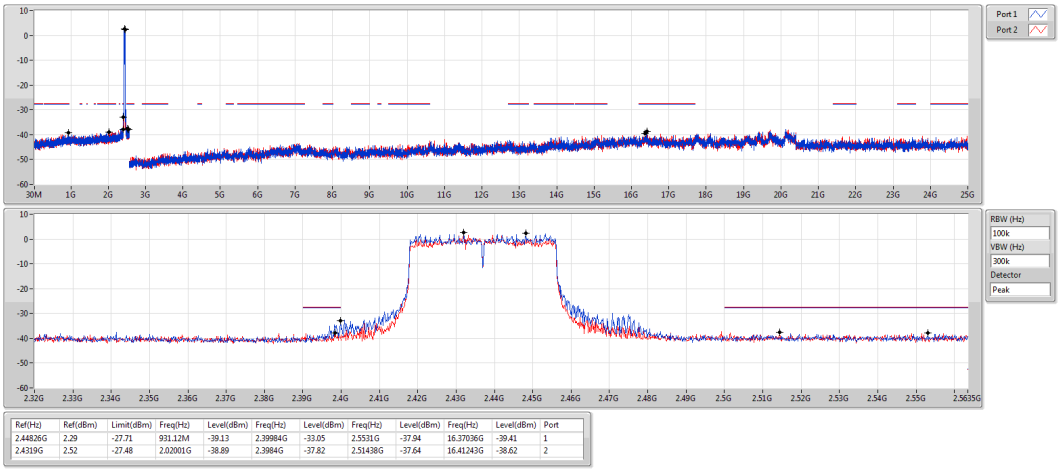
2422MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.42689G	2.42	-27.58	2.13795G	-38.26	2.39984G	-28.45	2.5211G	-36.71	16.35353G	-39.31	1
2.43707G	3.50	-26.50	1.95818G	-37.73	2.39952G	-29.14	2.51134G	-37.15	16.44889G	-38.51	2

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

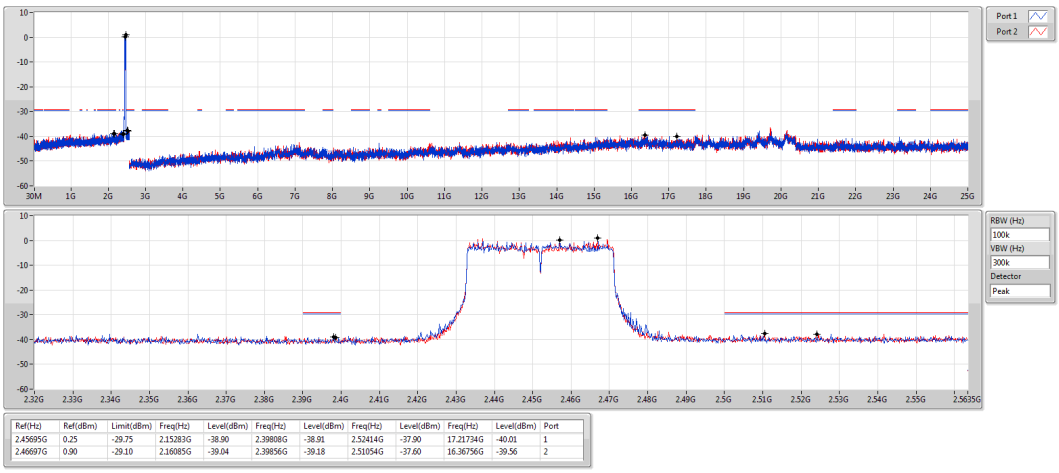
2437MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44826G	2.29	-27.71	931.12M	-39.13	2.39984G	-33.05	2.5531G	-37.94	16.37036G	-39.41	1
2.4319G	2.52	-27.48	2.02001G	-38.89	2.3984G	-37.82	2.51438G	-37.64	16.41243G	-38.62	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
2.45695G	0.25	-29.75	2.15283G	-38.90	2.39808G	-38.91	2.52414G	-37.90	17.21734G	-40.01	1
2.46697G	0.90	-29.10	2.16085G	-39.04	2.39856G	-39.18	2.51054G	-37.60	16.36756G	-39.56	2

The previous version of the test report has been cancelled and replaced by new version.

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==