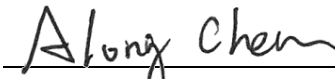


FCC Test Report

FCC ID : I8811AXAP246E
Equipment : 802.11ax (WiFi 6E) Dual-Radio Unified Pro
Access Point
(Refer to item 1.1.1 for more details)
Model No. : WAX620D-6E
(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 : May 17, 2022
Tested Date : May 19 ~ Jun. 15, 2022

We, International Certification Corporation, 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 shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:


Along Chen / Assistant Manager

Approved by:

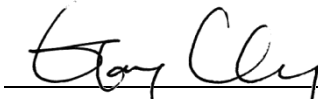

Gary Chang / Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Local Support Equipment List	9
1.3	Test Setup Chart	10
1.4	The Equipment List	11
1.5	Test Standards	12
1.6	Reference Guidance	12
1.7	Deviation from Test Standard and Measurement Procedure.....	12
1.8	Measurement Uncertainty	12
2	TEST CONFIGURATION	13
2.1	Testing Facility.....	13
2.2	The Worst Test Modes and Channel Details	13
3	TRANSMITTER TEST RESULTS.....	14
3.1	6dB and Occupied Bandwidth	14
3.2	Conducted Output Power	15
3.3	Power Spectral Density	16
3.4	Unwanted Emissions into Restricted Frequency Bands	17
3.5	Emissions in Non-Restricted Frequency Bands.....	19
3.6	AC Power Line Conducted Emissions	20
4	TEST LABORATORY INFORMATION	21
Appendix A. 6dB and Occupied Bandwidth		
Appendix B. Conducted Output Power		
Appendix C. Power Spectral Density		
Appendix D. Unwanted Emissions into Restricted Frequency Bands		
Appendix E. Emissions in Non-Restricted Frequency Bands		
Appendix F. AC Power Line Conducted Emissions		

Release Record

Report No.	Version	Description	Issued Date
FR251702AC	Rev. 01	Initial issue	Jul. 20, 2022

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.159MHz 52.60 (Margin -12.92dB) - QP	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2483.50MHz 53.53 (Margin -0..47dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: Non-beamforming mode 25.68 Beamforming mode 22.37	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	WAX620D-6E	802.11ax (WiFi 6E) Dual-Radio Unified Pro Access Point	-
ZYXEL	NWA220AX-6E	802.11ax (WiFi 6E) Dual-Radio PoE Access Point	Software difference
✦ The above models, model WAX620D-6E 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: DSSS-DBPSK, DQPSK, CCK modulation OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation. Note 3: 802.11ax supports beamforming function.					

1.1.3 Antenna Details

Ant. No.	Brand / Model	Type	Connector	Antenna Gain (dBi)	Remark
1	MSTC / P1	PIFA	UFL	2.3	Ceiling mounted: Antenna 1 / 3 Wall mounted: Antenna 2 / 3
2	MSTC / P2	PIFA	UFL	1.87	
3	MSTC / P3	PIFA	UFL	-0.87	

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter 56Vdc from POE
--------------------------	---

Note: The above power supply are not bundled in market.

1.1.5 Accessories

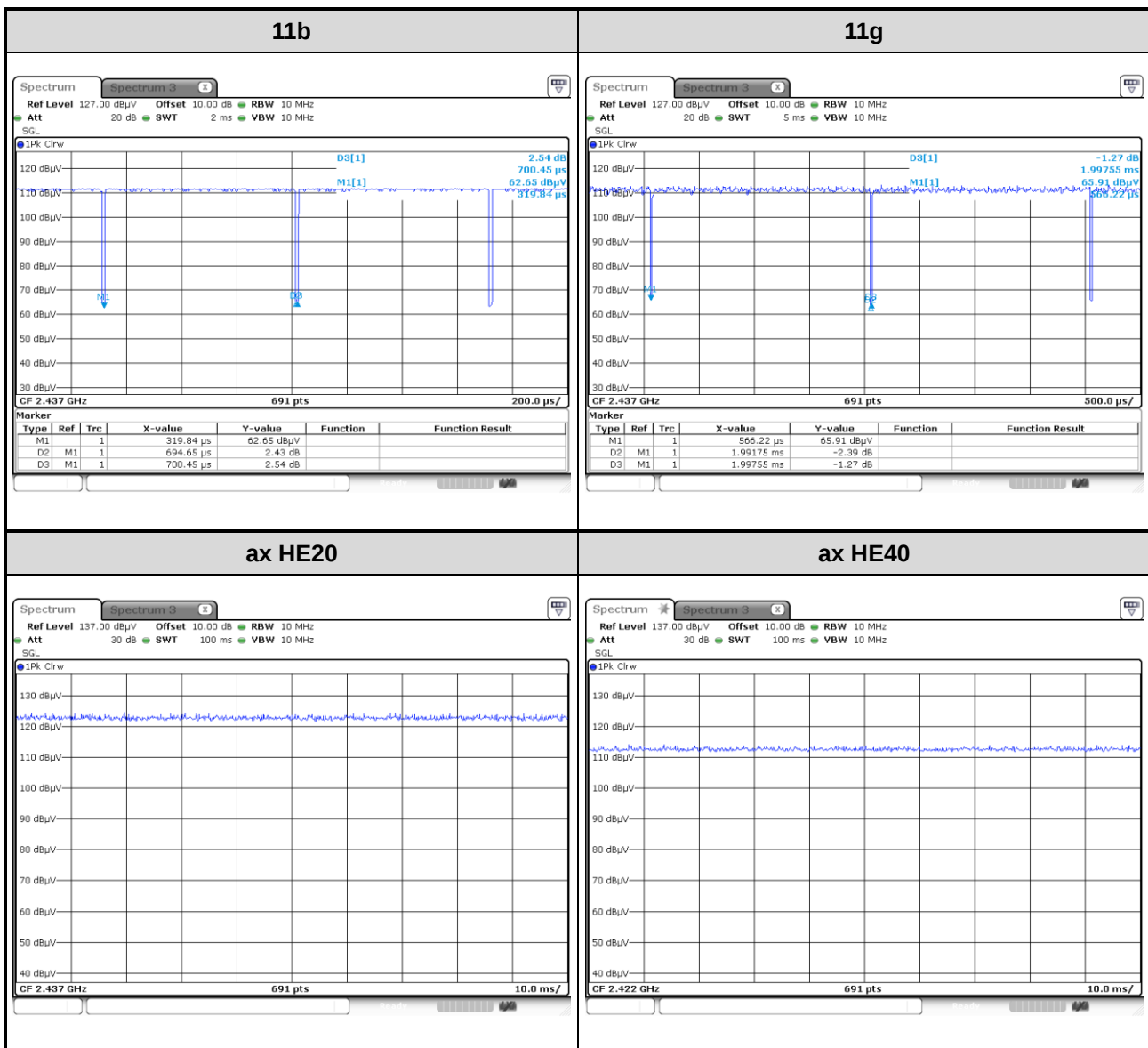
N/A

1.1.6 Channel List

Frequency band (MHz)		2400~2483.5	
802.11 b / g / 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, Version: V5.0-00200		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	99.17%	0.04
	11g	99.71%	0.01
	ax HE20	100.00%	0.00
	ax HE40	100.00%	0.00



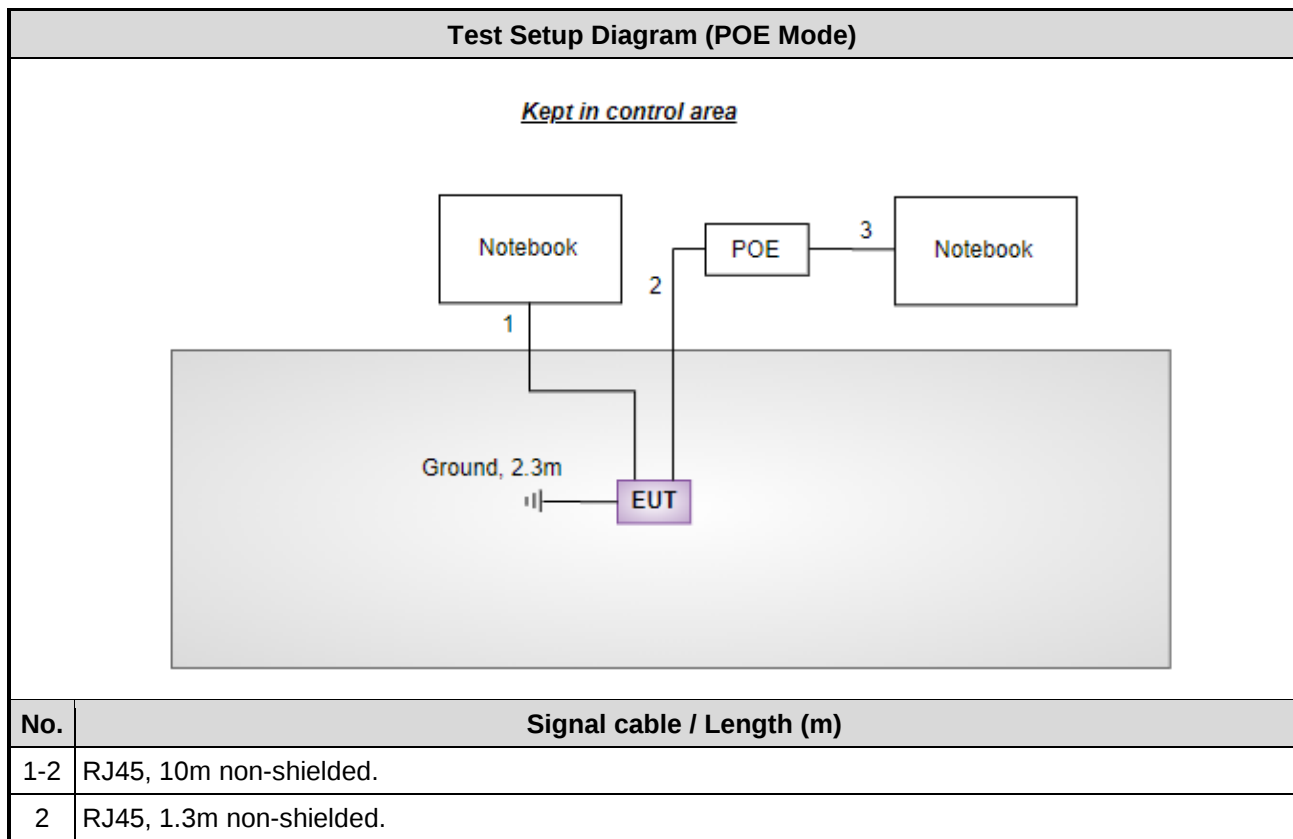
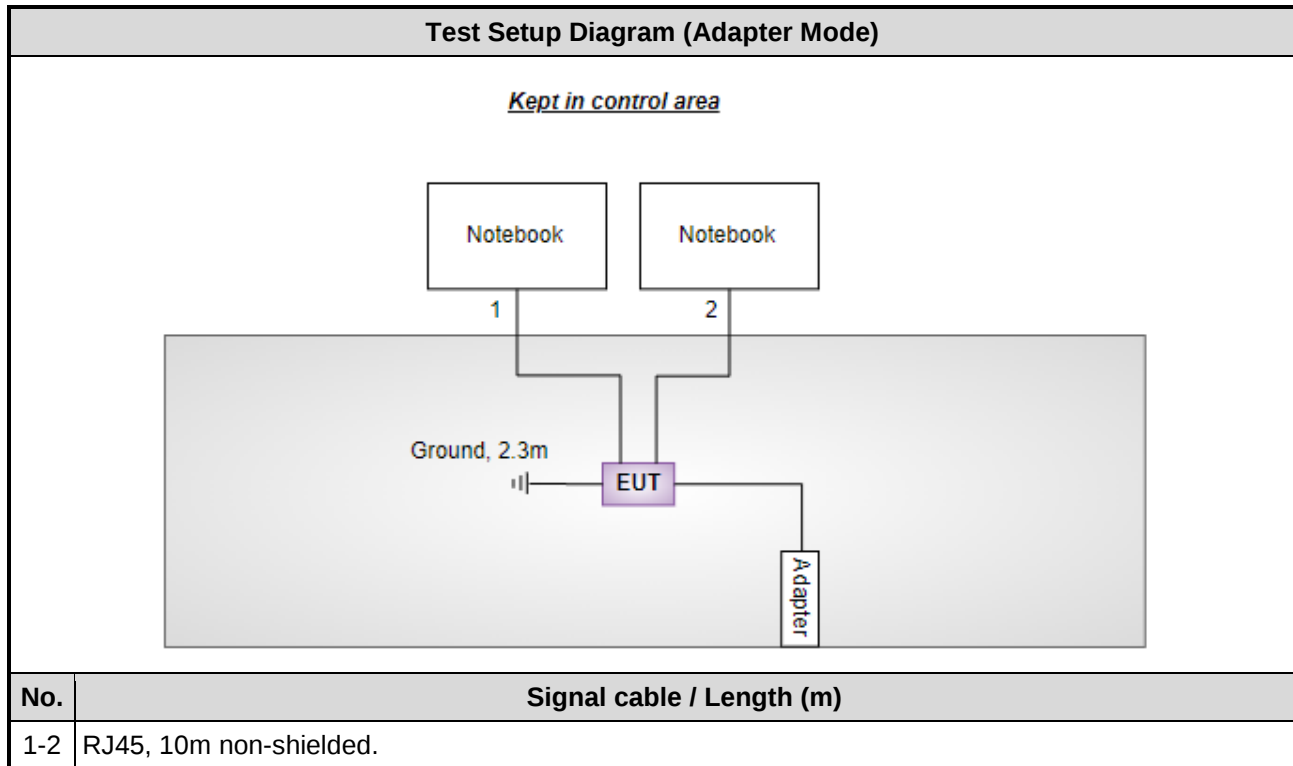
1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	22
11b	2437	22
11b	2462	22
11g	2412	22
11g	2437	22
11g	2462	22
ax HE20	2412	21.5
ax HE20	2437	21.5
ax HE20	2462	21.5
ax HE40	2422	22
ax HE40	2437	22
ax HE40	2452	19

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 5400	DoC	---
3	POE	ZYXEL	PoE12-60W	---	Remarks: I/P: 100-240Vac, 50-60Hz, 2.0A O/P: 56.0Vdc, 1.161A (Provided by applicant.)
4	Adapter	APD	WA-30P12R	---	Remarks: I/P: 100-240Vac, 50-60Hz, 0.9A O/P: 12Vdc, 2.5A (Provided by applicant.)

1.3 Test Setup Chart



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jun. 15, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 16, 2022	Feb. 15, 2023
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 07, 2022	Jan. 06, 2023
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022
50 ohm terminal (Support Unit)	NA	50	01	May 10, 2022	May 09, 2023
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 chamber3 / (03CH03-WS)				
Tested Date	May 19 ~ Jun. 07, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023
Spectrum Analyzer	R&S	FSV40	101499	Mar. 08, 2022	Mar. 07, 2023
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 20, 2021	Dec. 19, 2022
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 26, 2021	Jul. 25, 2022
Preamplifier	Agilent	83017A	MY39501309	Sep. 06, 2021	Sep. 05, 2022
Preamplifier	EMC	EMC184045B	980192	Jul. 14, 2021	Jul. 13, 2022
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 24, 2021	Sep. 23, 2022
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 24, 2021	Sep. 23, 2022
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 24, 2021	Sep. 23, 2022
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 24, 2021	Sep. 23, 2022
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 24, 2021	Sep. 23, 2022
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jun. 14, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2022	Apr. 17, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 07, 2021	Nov. 06, 2022
Power Sensor	Anritsu	MA2411B	1207366	Nov. 07, 2021	Nov. 06, 2022
Measurement Software	Sporton	SENSE-15247_DTS	V5.10.7.18	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.247
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 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
Unwanted Emission ≤ 1GHz	±3.96 dB
Unwanted Emission > 1GHz	±4.51 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

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

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Non-beamforming mode				
AC Power Line Conducted Emission	11g	2412	6 Mbps	1, 2
Unwanted Emissions ≤ 1GHz	11g	2412	6 Mbps	1, 2
Unwanted Emissions >1GHz	11b	2412 / 2437 / 2462	1 Mbps	1
Conducted Output Power	11g	2412 / 2437 / 2462	6 Mbps	
6dB bandwidth	ax HE20	2412 / 2437 / 2462	MCS 0	
Power spectral density	ax HE40	2422 / 2437 / 2452	MCS 0	
Beamforming mode				
Conducted Output Power	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	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. Test configurations are listed as below:				
1) Configuration 1: Adapter mode				
2) Configuration 2: POE mode				

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Test Procedures

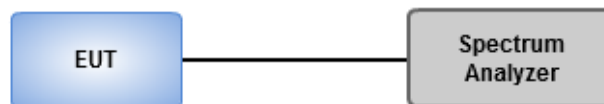
6dB Bandwidth

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.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	24°C / 67%	Tested By	Roger Lu
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain $\leq 6\text{dBi}$, no any corresponding reduction is in output power limit.

Antenna gain $> 6\text{dBi}$

Non Fixed, point to point operations.

The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

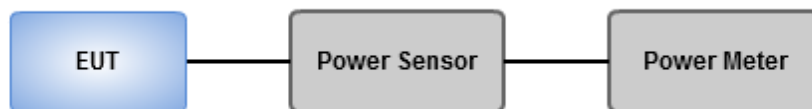
Fixed, point to point operations

Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 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.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	24°C / 67%	Tested By	Roger Lu
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Refer to Appendix B.

3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

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

3.3.2 Test Procedures

Peak PSD

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

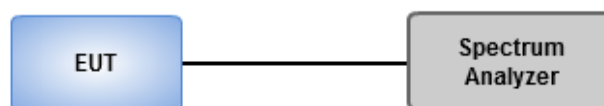
Average PSD, duty cycle $\geq 98\%$

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

Average PSD, duty cycle $< 98\%$

1. Set the RBW = 30 kHz, VBW = 100 kHz. Detector = RMS.
2. Set the sweep time to: ≥ 10 (number of measurement points in sweep) $\times$ (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.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	24°C / 67%	Tested By	Roger Lu
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Refer to Appendix C.

3.4 Unwanted Emissions into Restricted Frequency Bands

3.4.1 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:
Quasi-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.

3.4.2 Test Procedures

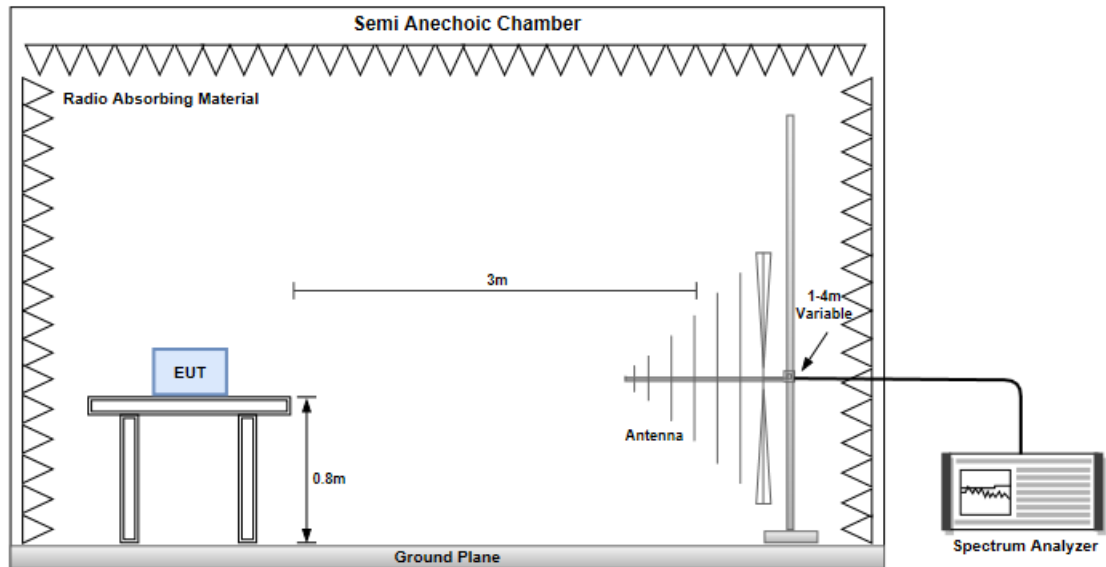
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

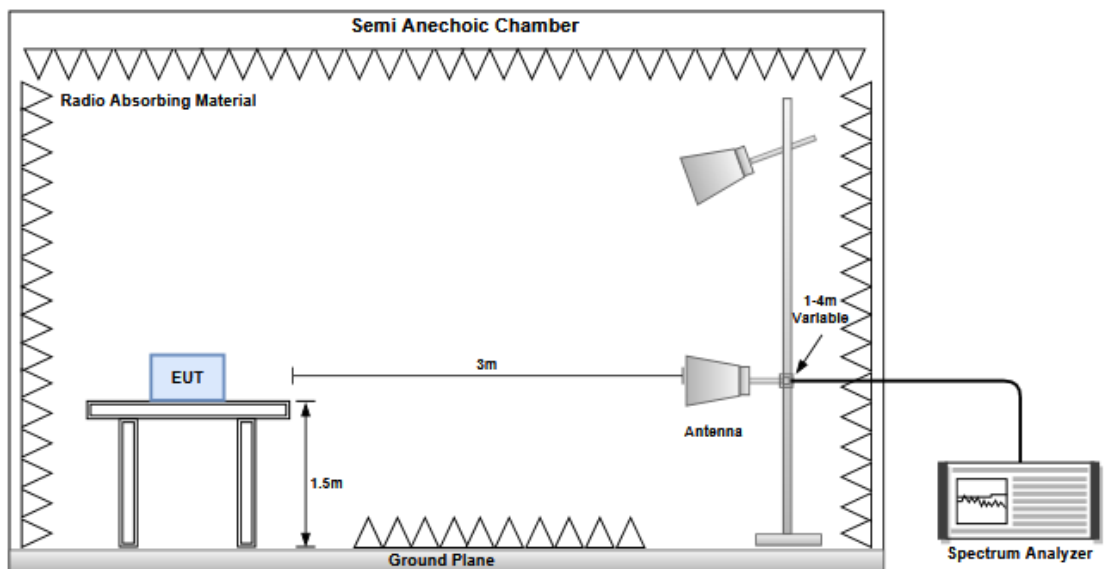
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 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.

3.5.2 Test Procedures

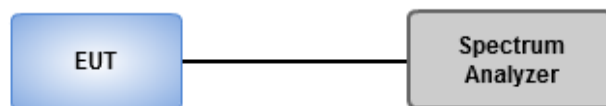
Reference level measurement

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

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	24°C / 67%	Tested By	Roger Lu
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

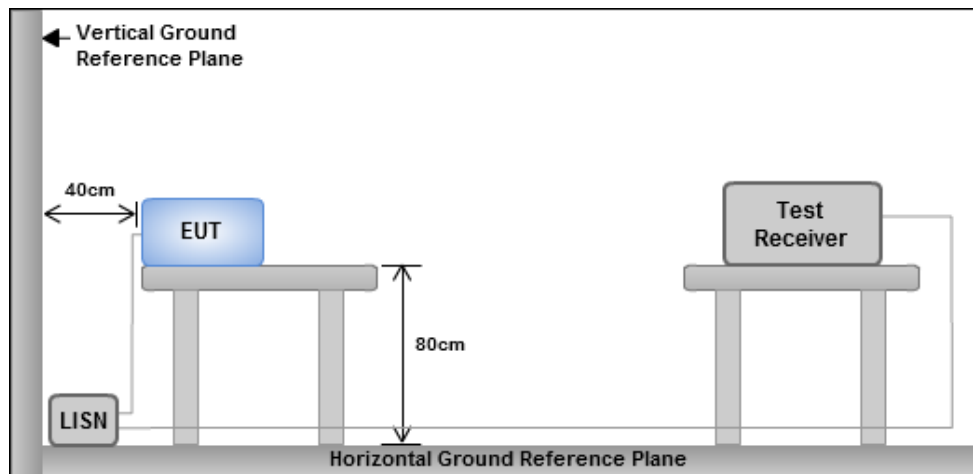
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.6.2 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.

3.6.3 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

3.6.4 Test Results

Refer to Appendix F.

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 Corporation (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

Tel: 886-2-2601-1640

No.30-2, Ding Fwu Tsuen, Lin Kou
District, New Taipei City, Taiwan
(R.O.C.)

Kwei Shan

Tel: 886-3-271-8666

No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., 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: 886-3-318-0345

Email: ICC_Service@icertifi.com.tw

==END==

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	8.05M	13.293M	13M3G1D	7.05M	13.093M
802.11g_Nss1,(6Mbps)_2TX	15.075M	16.342M	16M3D1D	13.825M	16.267M
802.11ax HEW20_Nss2,(MCS0)_2TX	15.1M	18.866M	18M9D1D	13.7M	18.791M
802.11ax HEW40_Nss2,(MCS0)_2TX	35.1M	37.681M	37M7D1D	25.85M	37.431M

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	7.55M	13.293M	7.55M	13.118M
2437MHz	Pass	500k	7.05M	13.243M	7.075M	13.218M
2462MHz	Pass	500k	8.025M	13.093M	8.05M	13.118M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15M	16.342M	14.975M	16.292M
2437MHz	Pass	500k	14.925M	16.317M	15.075M	16.342M
2462MHz	Pass	500k	15.025M	16.267M	13.825M	16.267M
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	14.975M	18.816M	13.75M	18.816M
2437MHz	Pass	500k	15.075M	18.816M	15.1M	18.866M
2462MHz	Pass	500k	13.7M	18.791M	14.975M	18.791M
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	25.85M	37.431M	26.2M	37.481M
2437MHz	Pass	500k	31.6M	37.631M	31.35M	37.681M
2452MHz	Pass	500k	35.1M	37.581M	29.9M	37.631M

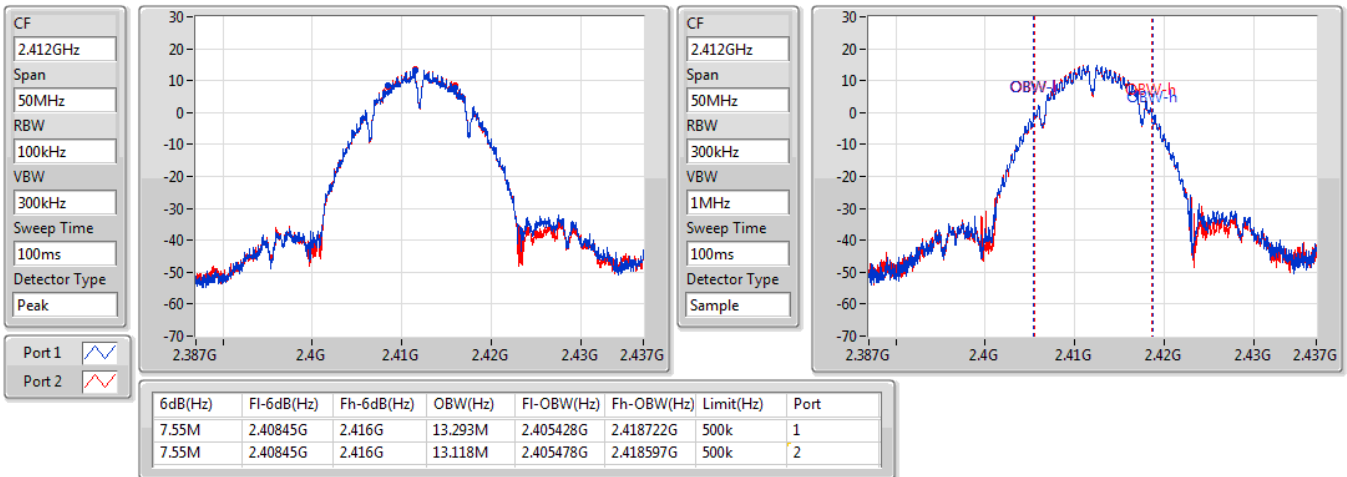
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

802.11b_Nss1,(1Mbps)_2TX

EBW

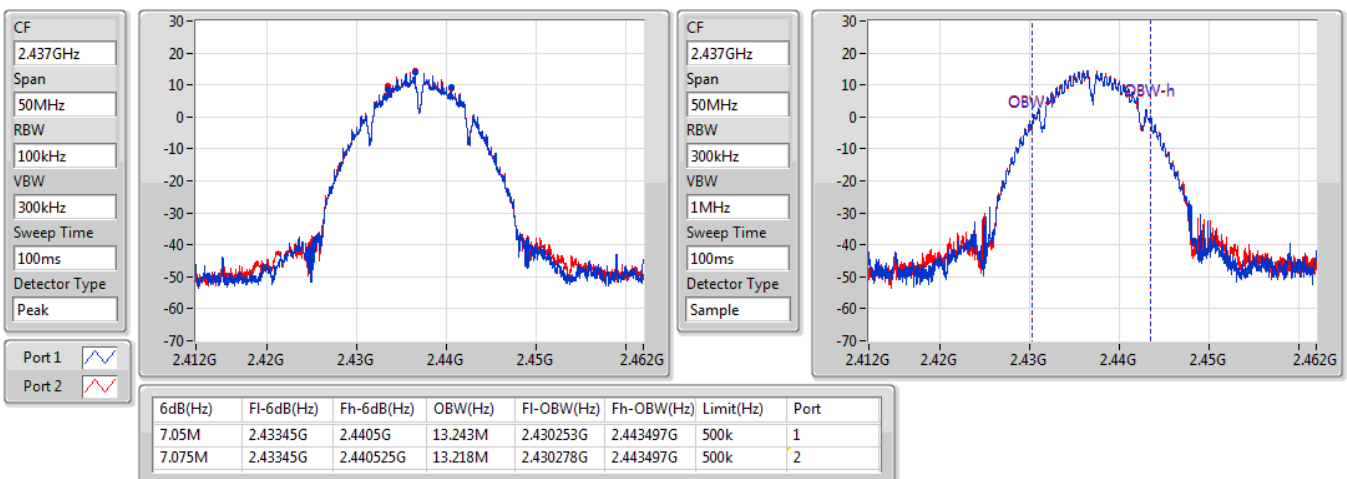
2412MHz



802.11b_Nss1,(1Mbps)_2TX

EBW

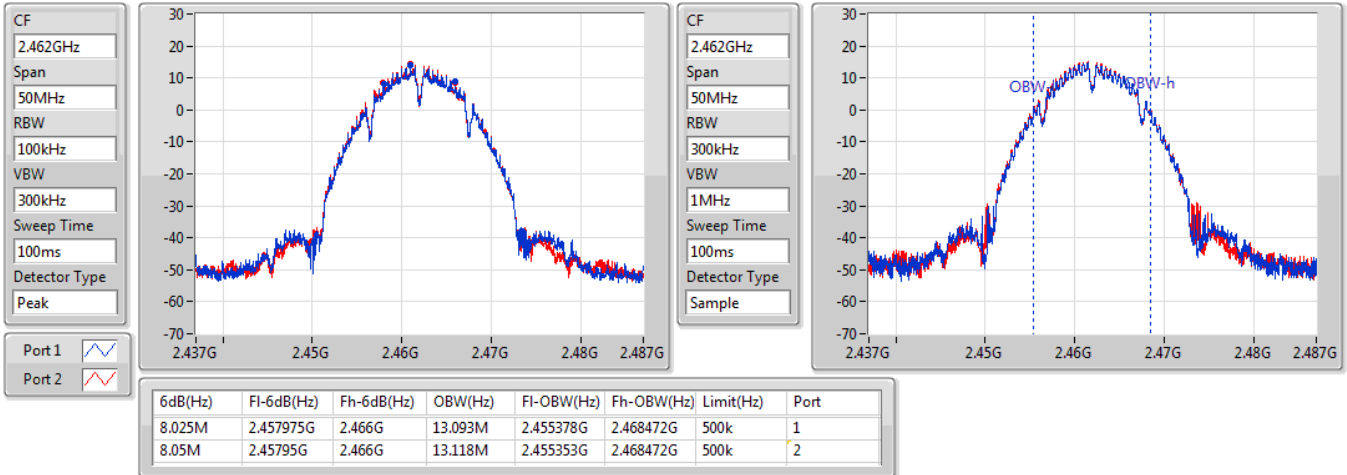
2437MHz



802.11b_Nss1,(1Mbps)_2TX

EBW

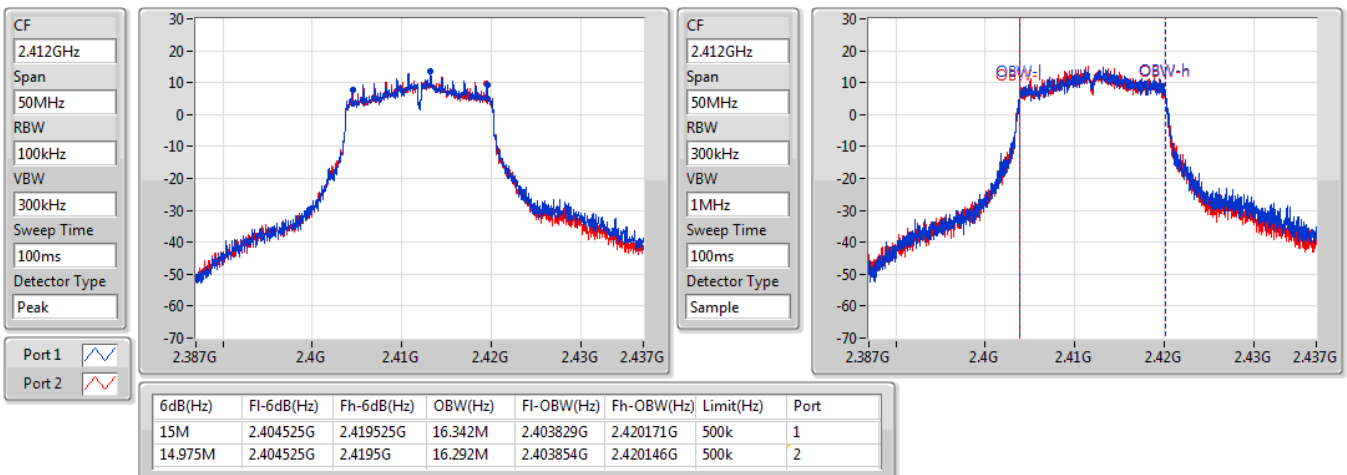
2462MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

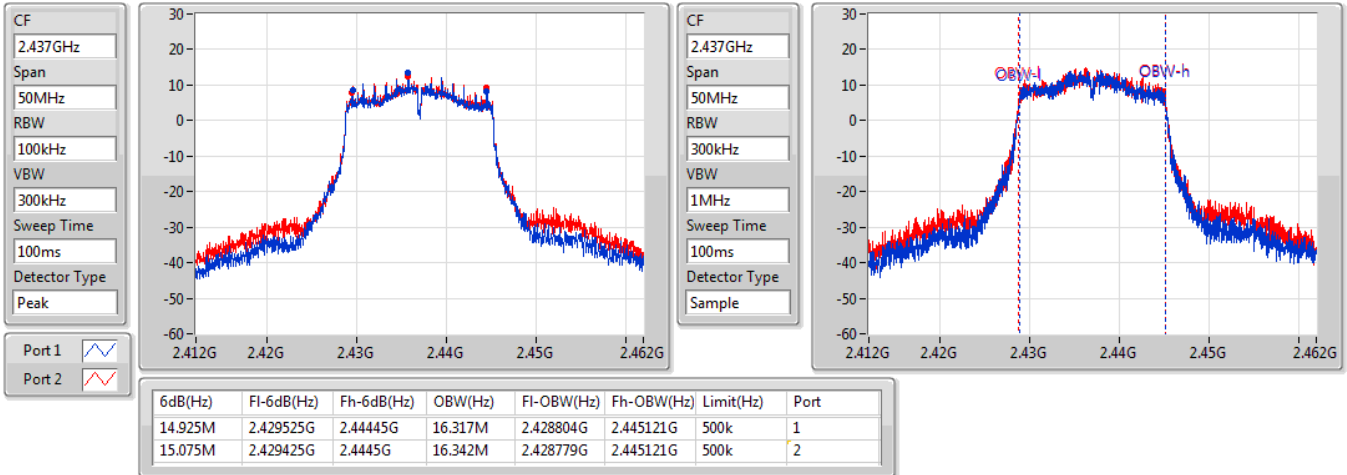
2412MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

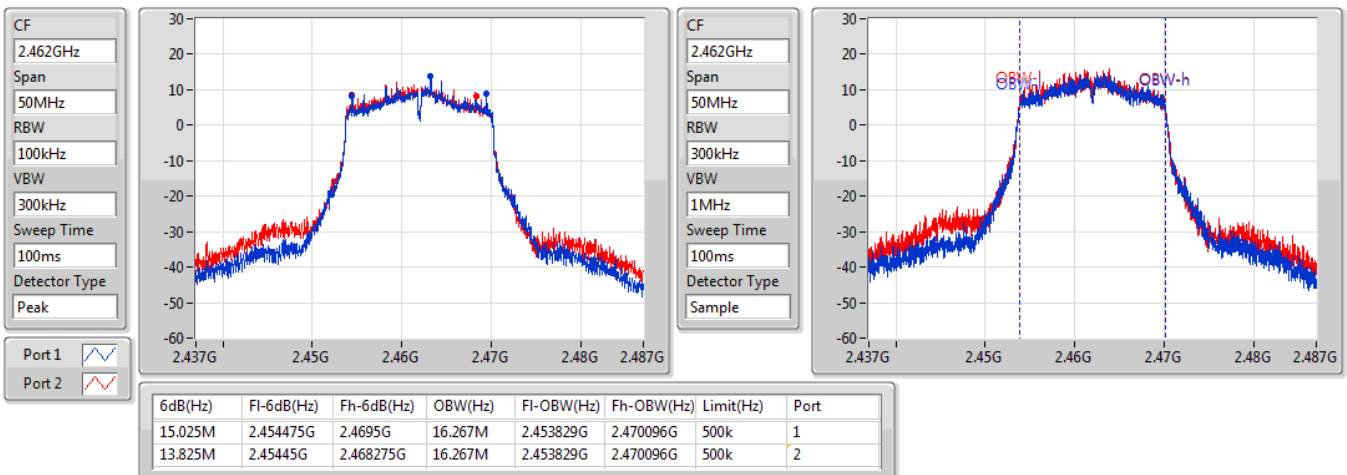
2437MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

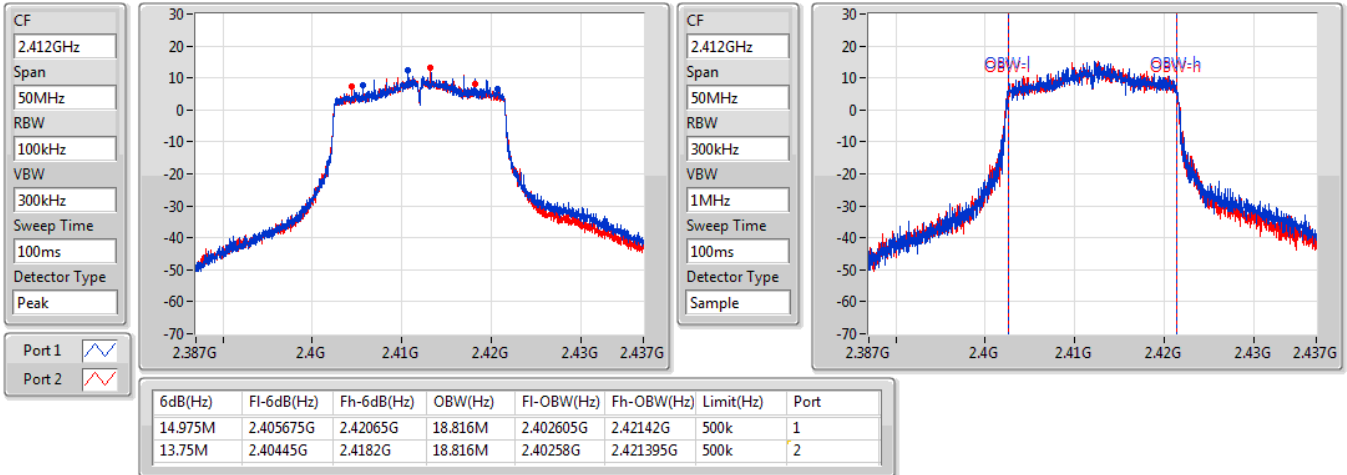
2462MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

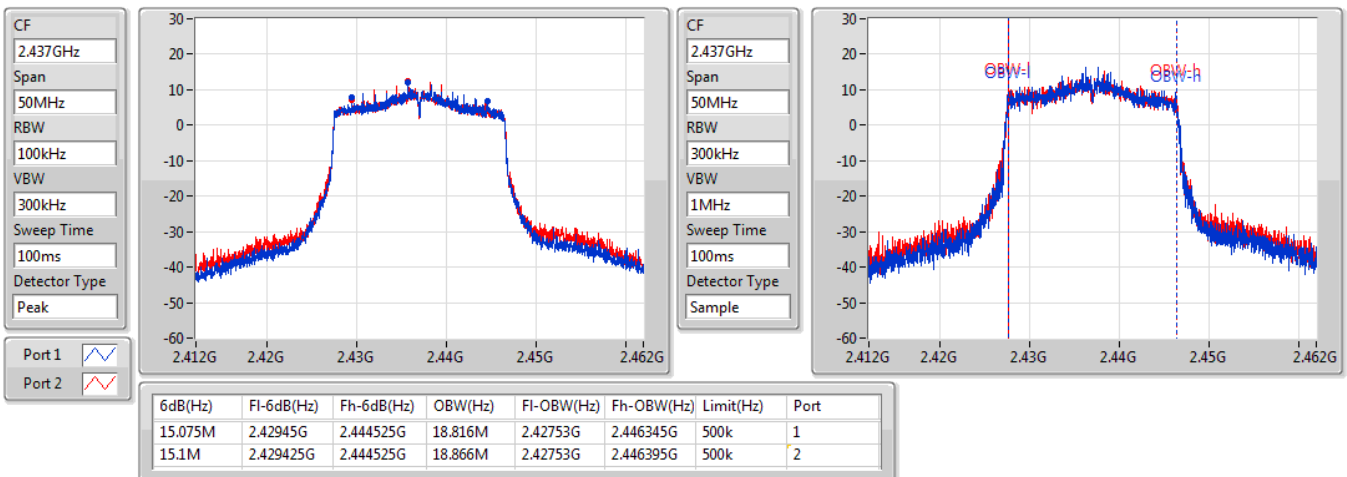
2412MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

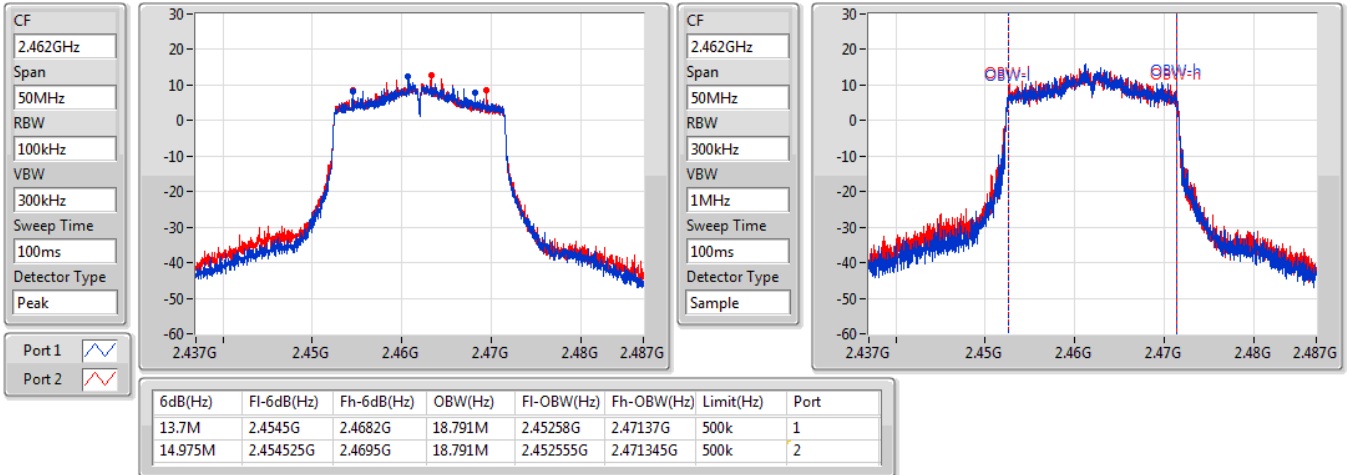
2437MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

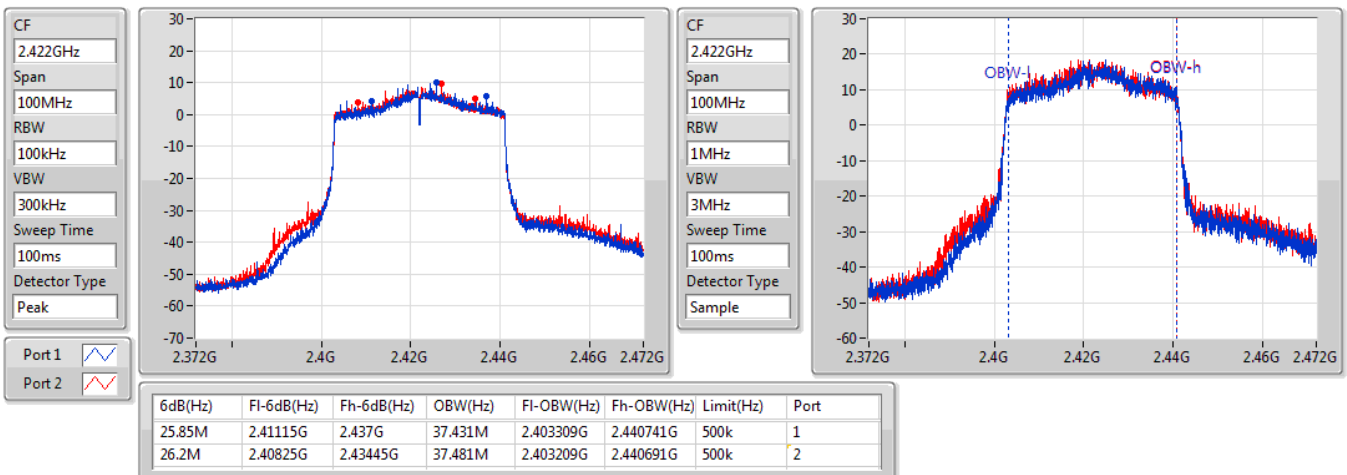
2462MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

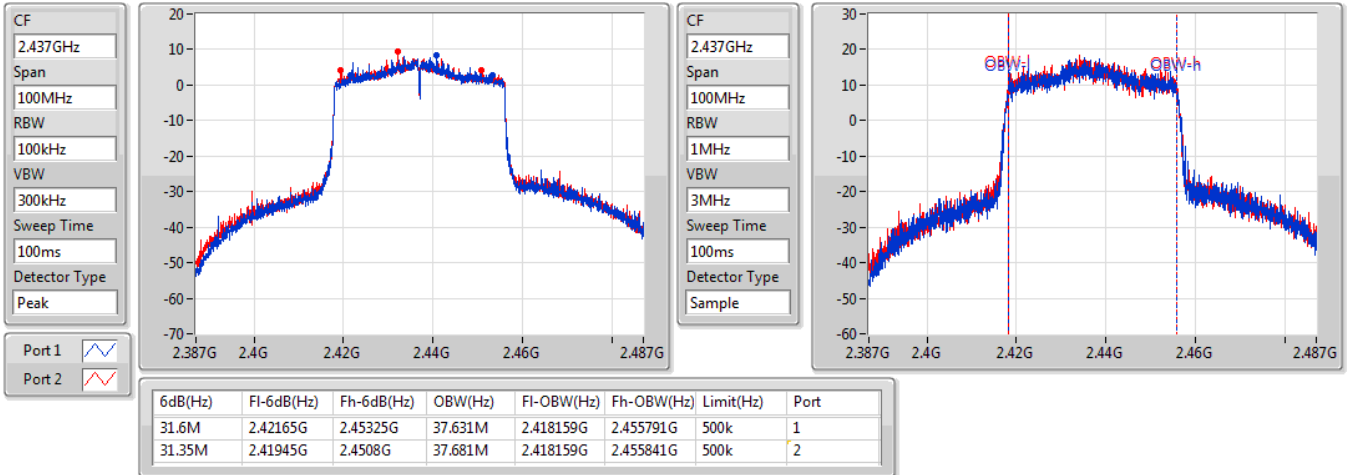
2422MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

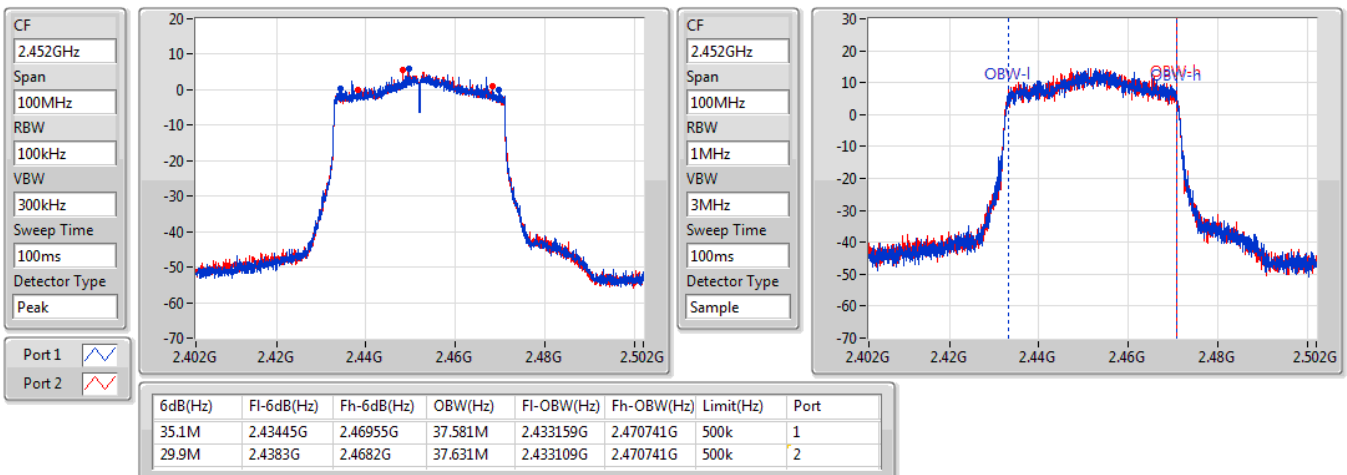
2437MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

2452MHz





Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	25.31	0.33963
802.11g_Nss1,(6Mbps)_2TX	25.68	0.36983
802.11ax HEW20_Nss2,(MCS0)_2TX	25.21	0.33189
802.11ax HEW40_Nss2,(MCS0)_2TX	25.38	0.34514

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30	22.15	22.42	25.30	30.00	27.60	36.00
2437MHz	Pass	2.30	22.08	22.33	25.22	30.00	27.52	36.00
2462MHz	Pass	2.30	22.11	22.48	25.31	30.00	27.61	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.30	22.42	22.91	25.68	30.00	27.98	36.00
2437MHz	Pass	2.30	22.36	22.78	25.59	30.00	27.89	36.00
2462MHz	Pass	2.30	22.44	22.85	25.66	30.00	27.96	36.00
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	1.00	21.93	22.45	25.21	30.00	26.21	36.00
2437MHz	Pass	1.00	21.89	22.16	25.04	30.00	26.04	36.00
2462MHz	Pass	1.00	21.91	22.19	25.06	30.00	26.06	36.00
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.00	22.08	22.65	25.38	30.00	26.38	36.00
2437MHz	Pass	1.00	22.09	22.42	25.27	30.00	26.27	36.00
2452MHz	Pass	1.00	19.21	19.52	22.38	30.00	23.38	36.00

DG = Directional Gain;

For 802.11ax

Directional gain = $10 \log [(10^{2.3/10} + 10^{-0.87/10}) / 2] = 1 \text{ dBi}$

Port X = Port X output power

**Beamforming mode****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss2,(MCS0)_2TX	22.20	0.16596
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	22.37	0.17258

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_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	1.00	18.92	19.44	22.20	30.00	23.20	36.00
2437MHz	Pass	1.00	18.88	19.15	22.03	30.00	23.03	36.00
2462MHz	Pass	1.00	18.9	19.18	22.05	30.00	23.05	36.00
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.00	19.07	19.64	22.37	30.00	23.37	36.00
2437MHz	Pass	1.00	19.08	19.41	22.26	30.00	23.26	36.00
2452MHz	Pass	1.00	16.2	16.51	19.37	30.00	20.37	36.00

DG = Directional Gain= $10 \log [(10^{2.3/10} + 10^{-0.87/10}) / 2] = 1 \text{ dBi}$

Port X = Port X output power

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-0.92
802.11g_Nss1,(6Mbps)_2TX	-4.34
802.11ax HEW20_Nss2,(MCS0)_2TX	-7.10
802.11ax HEW40_Nss2,(MCS0)_2TX	-9.24

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.87	-3.47	-4.30	-0.92	8.00
2437MHz	Pass	3.87	-4.72	-3.08	-0.97	8.00
2462MHz	Pass	3.87	-4.40	-4.03	-1.36	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.87	-7.09	-7.29	-4.48	8.00
2437MHz	Pass	3.87	-7.18	-6.44	-4.76	8.00
2462MHz	Pass	3.87	-7.36	-6.19	-4.34	8.00
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	1.00	-9.55	-9.17	-7.10	8.00
2437MHz	Pass	1.00	-8.48	-8.73	-7.12	8.00
2462MHz	Pass	1.00	-9.08	-9.00	-7.32	8.00
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	1.00	-11.95	-11.18	-9.24	8.00
2437MHz	Pass	1.00	-11.65	-11.55	-9.64	8.00
2452MHz	Pass	1.00	-15.32	-14.60	-12.82	8.00

DG = Directional Gain

For 802.11b/g

Directional gain = $10 \log [(10^{2.3/20} + 10^{-0.87/20})^2 / 2] = 3.87 \text{ dBi}$

For 802.11ax

Directional gain = $10 \log [(10^{2.3/10} + 10^{-0.87/10}) / 2] = 1 \text{ dBi}$

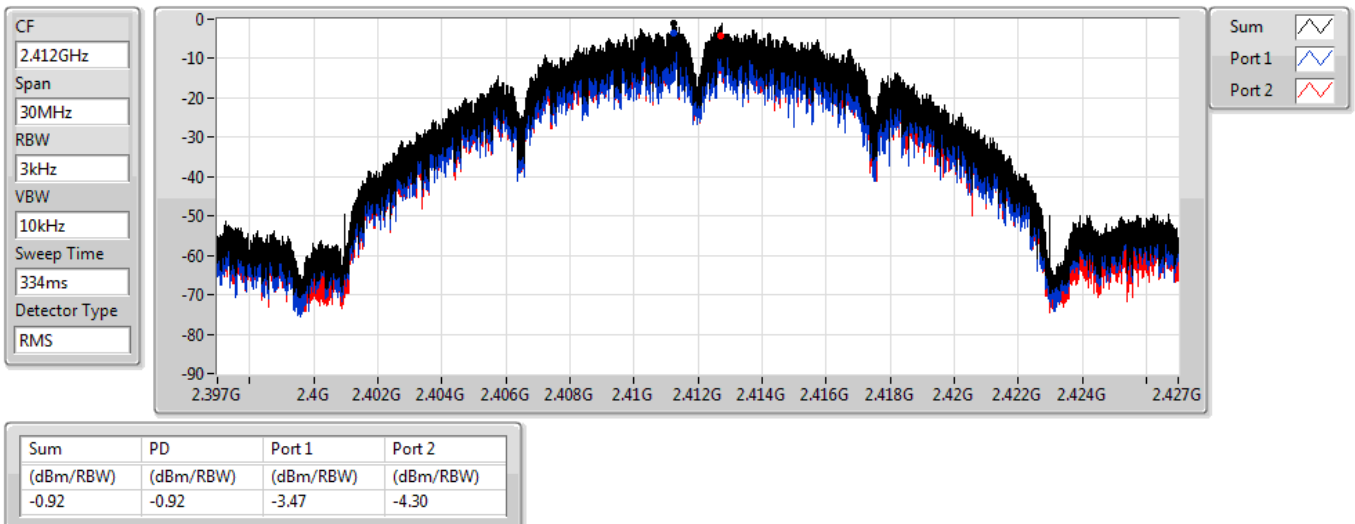
RBW = 3kHz;

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

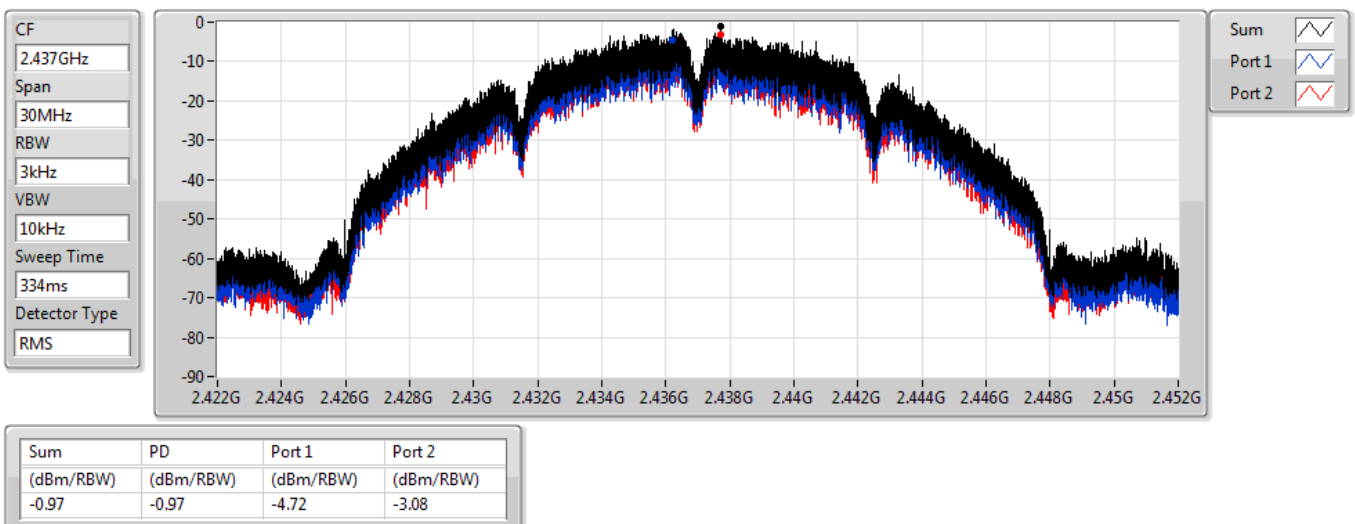
2412MHz



802.11b_Nss1,(1Mbps)_2TX

PSD

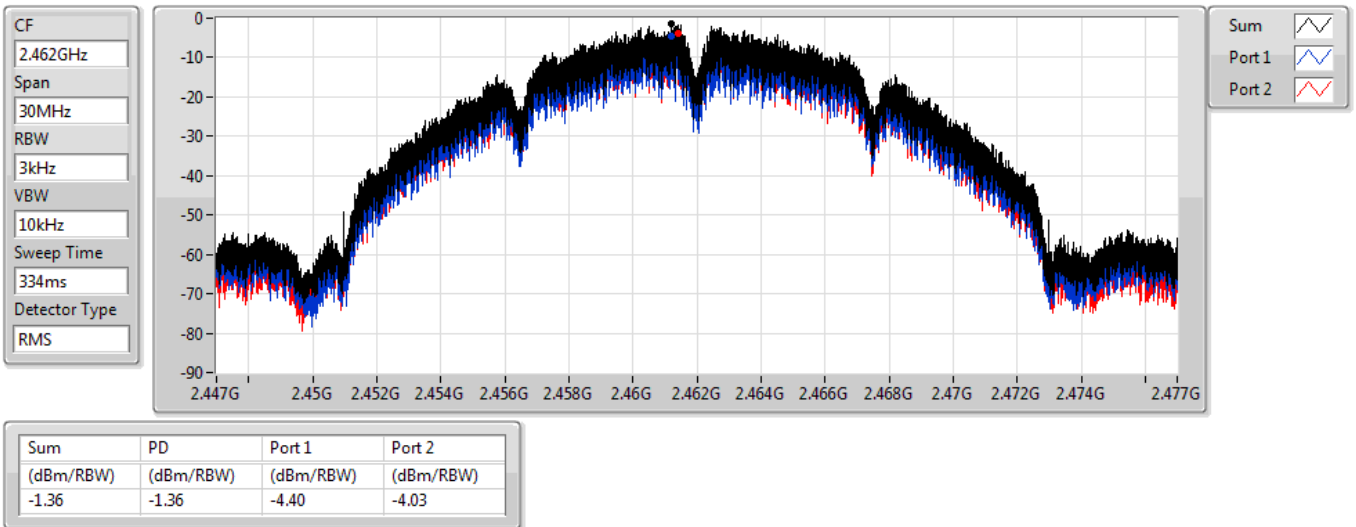
2437MHz



802.11b_Nss1,(1Mbps)_2TX

PSD

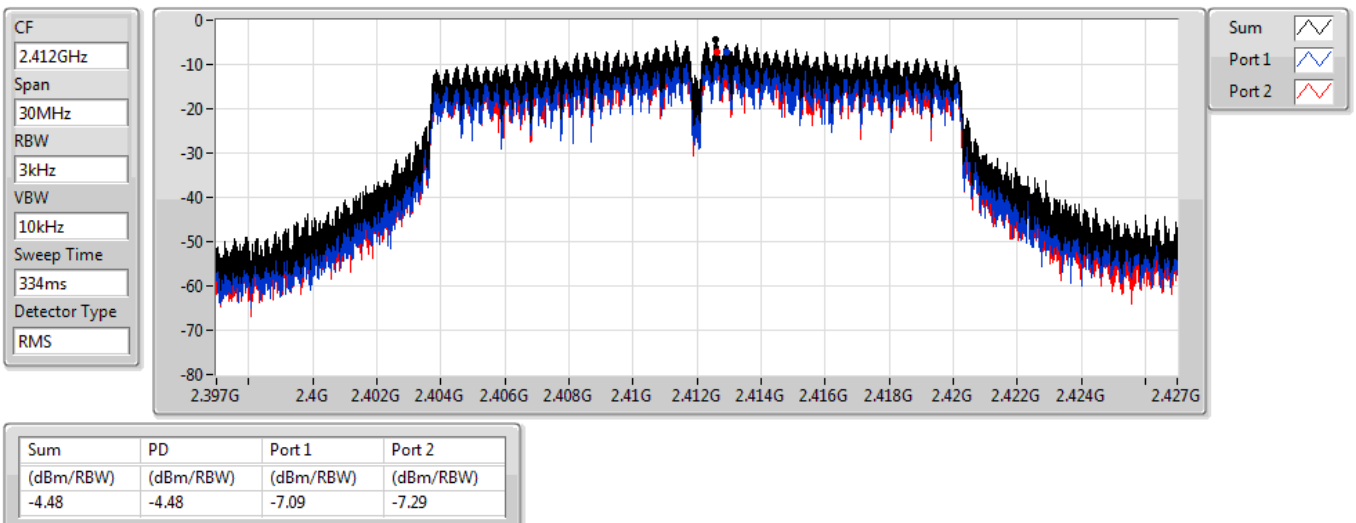
2462MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

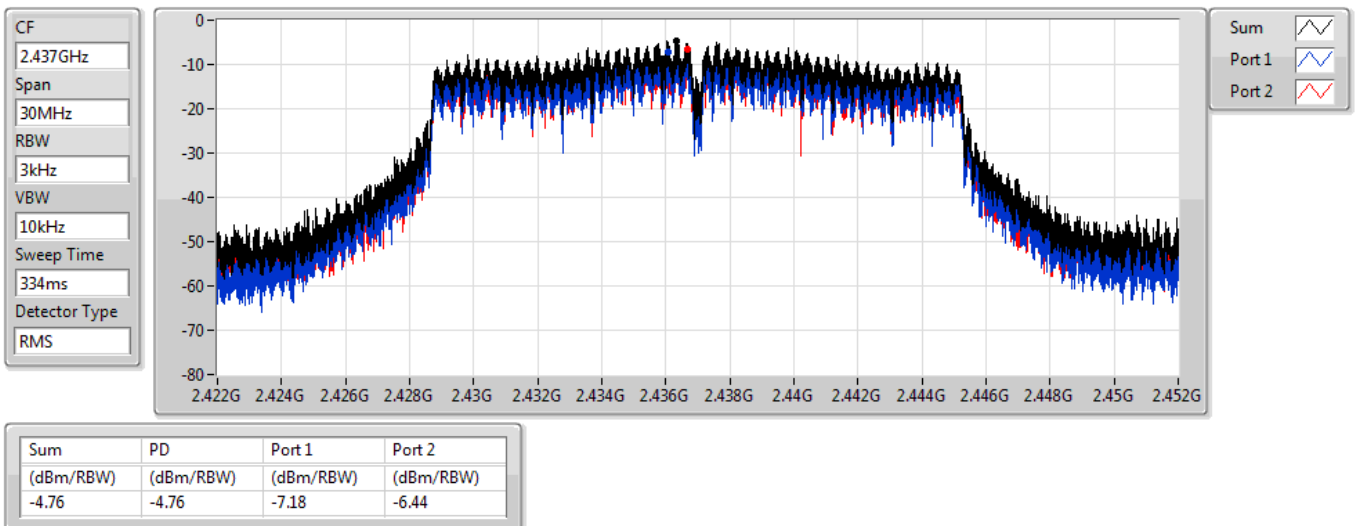
2412MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

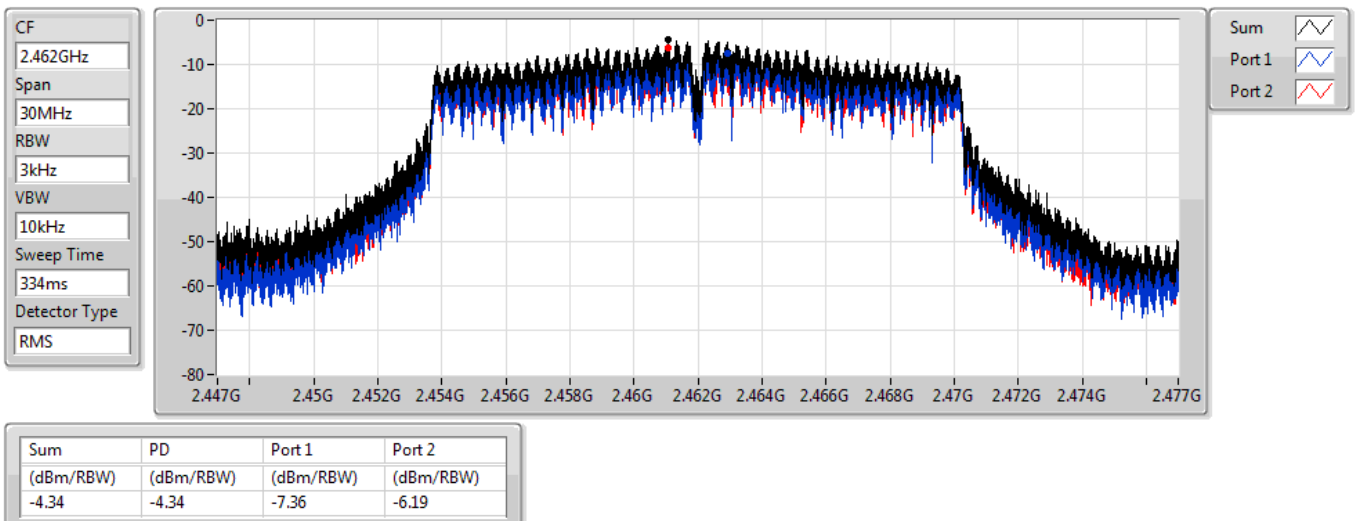
2437MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

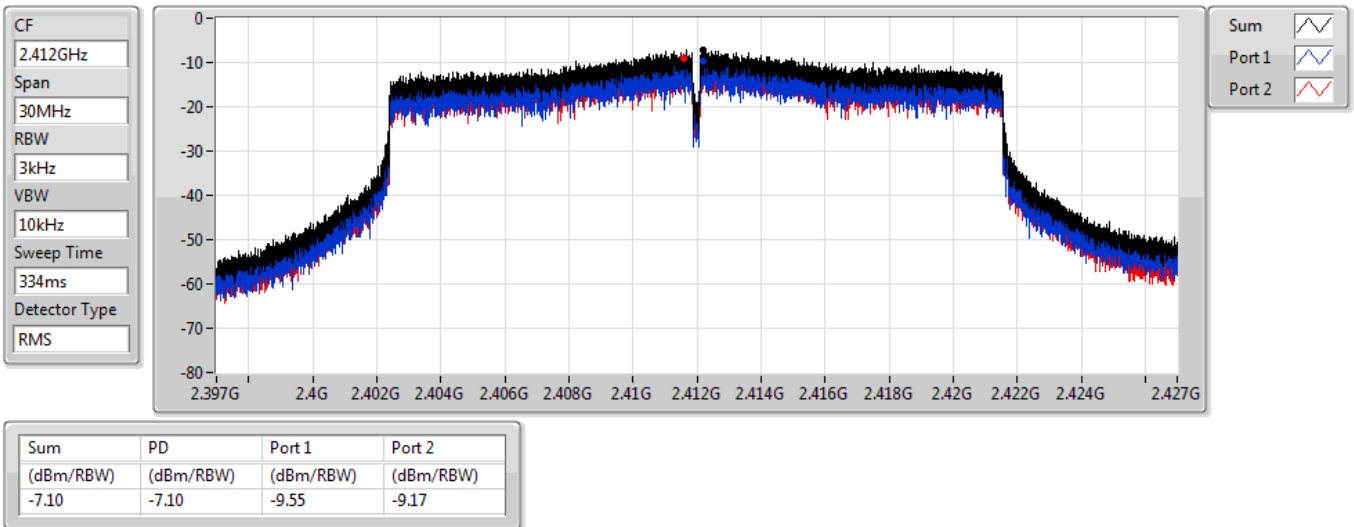
2462MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

PSD

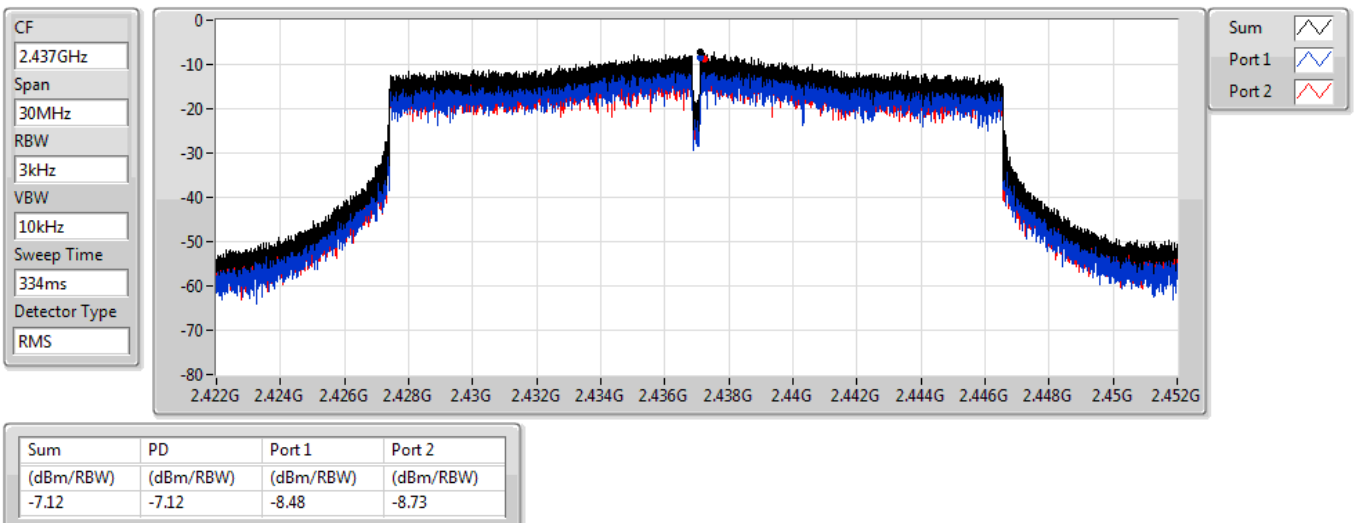
2412MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

PSD

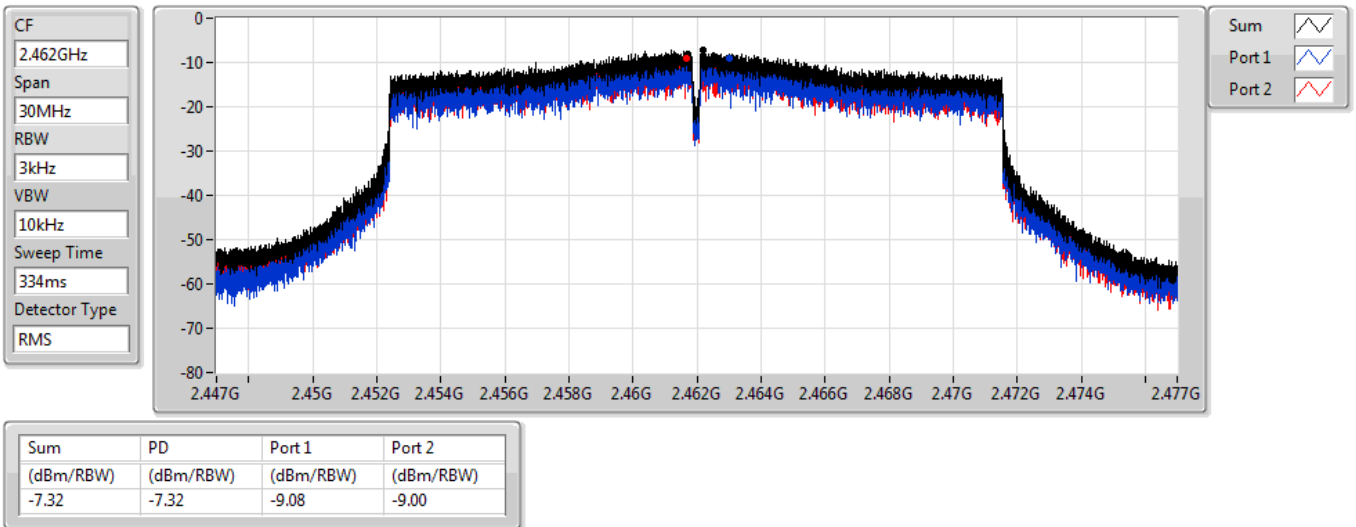
2437MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

PSD

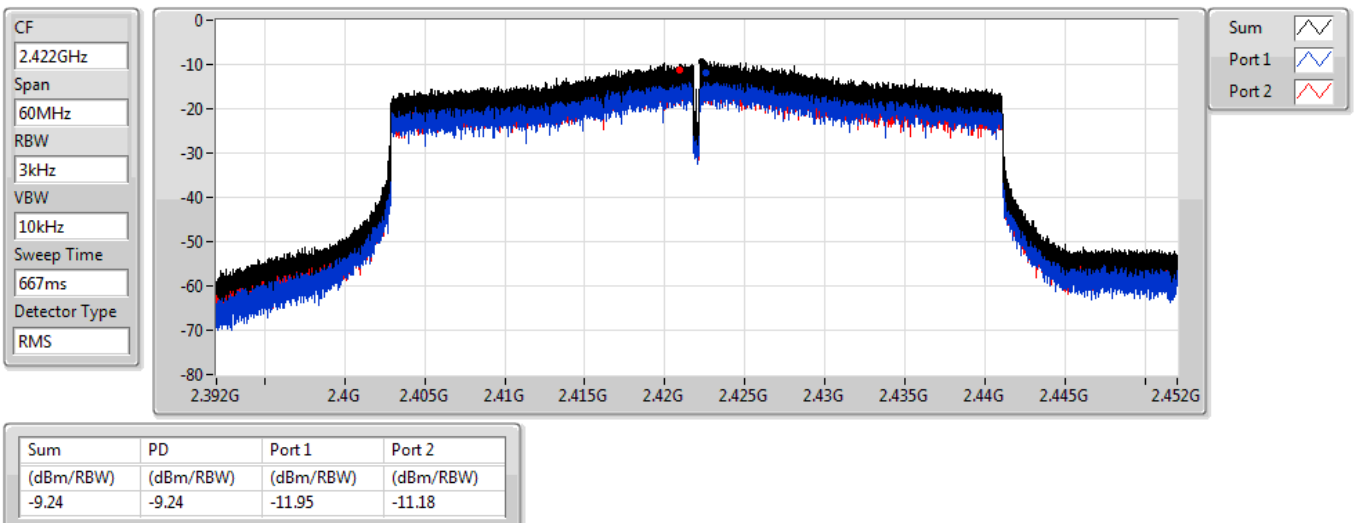
2462MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

PSD

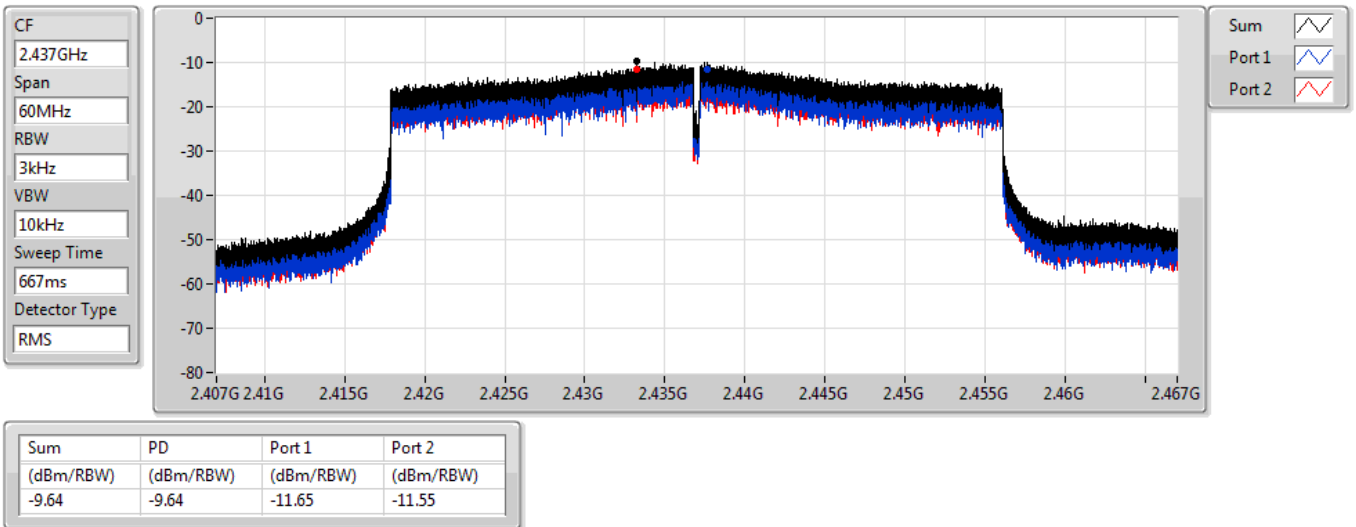
2422MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

PSD

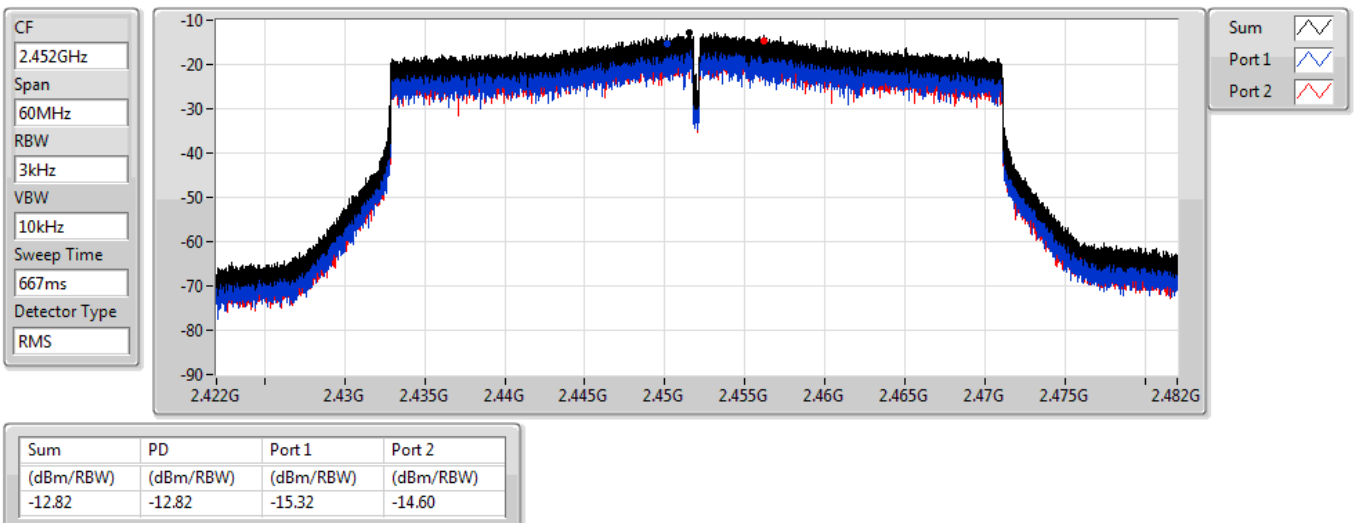
2437MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

PSD

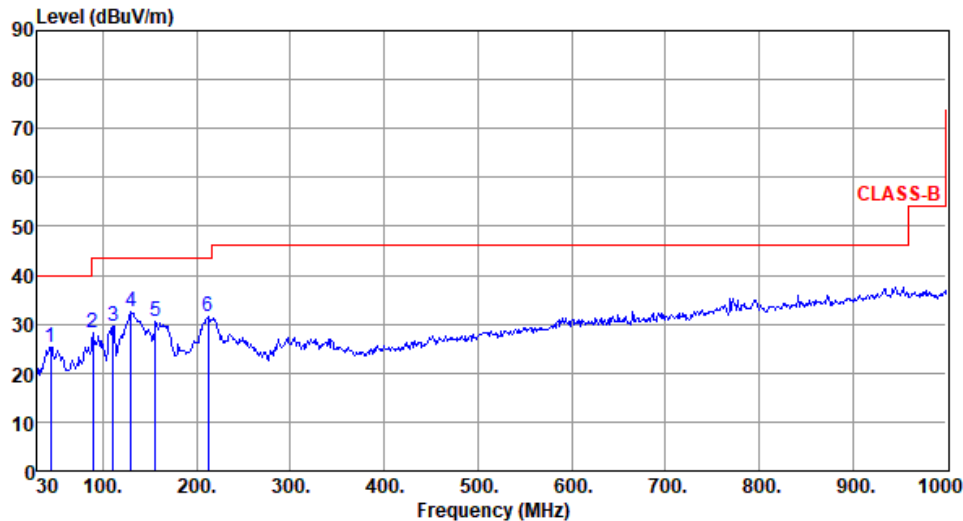
2452MHz





Adapter mode

Unwanted Emissions (Below 1GHz)

Modulation	11g	Test Freq. (MHz)	2412																																																																						
Polarization	Horizontal																																																																								
Test By :Brad Wu Temperature(°C):24 Humidity(%):67																																																																									
Level (dBUV/m)  Frequency (MHz) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>44.55</td><td>25.19</td><td>40.00</td><td>-14.81</td><td>33.60</td><td>-8.41</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>89.17</td><td>28.15</td><td>43.50</td><td>-15.35</td><td>42.66</td><td>-14.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>110.51</td><td>29.50</td><td>43.50</td><td>-14.00</td><td>40.95</td><td>-11.45</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>129.91</td><td>32.47</td><td>43.50</td><td>-11.03</td><td>42.00</td><td>-9.53</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>156.10</td><td>30.69</td><td>43.50</td><td>-12.81</td><td>39.10</td><td>-8.41</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>212.36</td><td>31.54</td><td>43.50</td><td>-11.96</td><td>43.12</td><td>-11.58</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	44.55	25.19	40.00	-14.81	33.60	-8.41	Peak	---	---	2	89.17	28.15	43.50	-15.35	42.66	-14.51	Peak	---	---	3	110.51	29.50	43.50	-14.00	40.95	-11.45	Peak	---	---	4	129.91	32.47	43.50	-11.03	42.00	-9.53	Peak	---	---	5	156.10	30.69	43.50	-12.81	39.10	-8.41	Peak	---	---	6	212.36	31.54	43.50	-11.96	43.12	-11.58	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	44.55	25.19	40.00	-14.81	33.60	-8.41	Peak	---	---																																																																
2	89.17	28.15	43.50	-15.35	42.66	-14.51	Peak	---	---																																																																
3	110.51	29.50	43.50	-14.00	40.95	-11.45	Peak	---	---																																																																
4	129.91	32.47	43.50	-11.03	42.00	-9.53	Peak	---	---																																																																
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6	212.36	31.54	43.50	-11.96	43.12	-11.58	Peak	---	---																																																																
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.																																																																									



Modulation	11g	Test Freq. (MHz)	2412																																																																						
Polarization	Vertical																																																																								
Test By :Brad Wu Temperature(°C):24 Humidity(%):67																																																																									
Level (dBUV/m) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>42.61</td><td>34.05</td><td>40.00</td><td>-5.95</td><td>42.45</td><td>-8.40</td><td>QP</td><td>100</td><td>248</td></tr><tr><td>2</td><td>52.31</td><td>35.22</td><td>40.00</td><td>-4.78</td><td>43.86</td><td>-8.64</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>85.29</td><td>33.96</td><td>40.00</td><td>-6.04</td><td>48.22</td><td>-14.26</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>130.88</td><td>29.20</td><td>43.50</td><td>-14.30</td><td>38.62</td><td>-9.42</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>164.83</td><td>31.59</td><td>43.50</td><td>-11.91</td><td>40.15</td><td>-8.56</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>220.12</td><td>30.36</td><td>46.00</td><td>-15.64</td><td>41.91</td><td>-11.55</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	42.61	34.05	40.00	-5.95	42.45	-8.40	QP	100	248	2	52.31	35.22	40.00	-4.78	43.86	-8.64	Peak	---	---	3	85.29	33.96	40.00	-6.04	48.22	-14.26	Peak	---	---	4	130.88	29.20	43.50	-14.30	38.62	-9.42	Peak	---	---	5	164.83	31.59	43.50	-11.91	40.15	-8.56	Peak	---	---	6	220.12	30.36	46.00	-15.64	41.91	-11.55	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	42.61	34.05	40.00	-5.95	42.45	-8.40	QP	100	248																																																																
2	52.31	35.22	40.00	-4.78	43.86	-8.64	Peak	---	---																																																																
3	85.29	33.96	40.00	-6.04	48.22	-14.26	Peak	---	---																																																																
4	130.88	29.20	43.50	-14.30	38.62	-9.42	Peak	---	---																																																																
5	164.83	31.59	43.50	-11.91	40.15	-8.56	Peak	---	---																																																																
6	220.12	30.36	46.00	-15.64	41.91	-11.55	Peak	---	---																																																																
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *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.																																																																									

Unwanted Emission (Above 1GHz) for 11b

Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):24 Humidity(%):69			
Level (dBUV/m)			



Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):24 Humidity(%):69			
Level (dBUV/m) </			



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):24 Humidity(%):69			
Level (dBUV/m)			



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):24 Humidity(%):69			
Level (dBuV/m)			



Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):24 Humidity(%):69			
Level (dBuV/m) </			

Modulation		11b		Test Freq. (MHz)		2462			
Polarization		Vertical							
Test By		:Akun Chung		Temperature(°C):24		Humidity(%):69			
Level (dBUV/m) <									



Unwanted Emissions (Above 1GHz) for 11g

Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):69			
Level (dBUV/m)			



Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):69			
Level (dBUV/m) <			



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):69			
Level (dBuV/m) <			

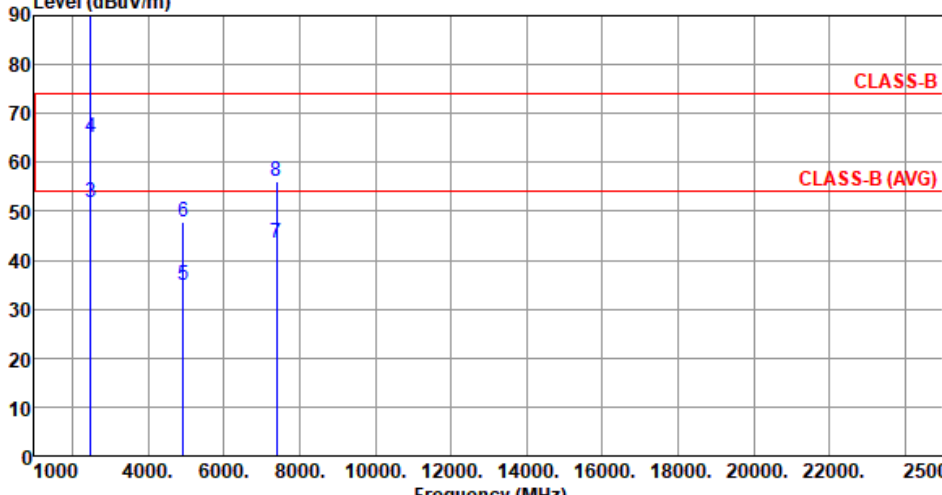


Modulation	11g	Test Freq. (MHz)	2437																																																																																																														
Polarization	Vertical																																																																																																																
Test By :Brad Wu Temperature(°C):24 Humidity(%):69																																																																																																																	
Level (dBUV/m) CLASS-B CLASS-B (AVG) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>2390.00</td><td>41.45</td><td>54.00</td><td>-12.55</td><td>42.94</td><td>-1.49</td><td>Average</td><td>315</td><td>346</td></tr><tr><td>2</td><td>2390.00</td><td>53.22</td><td>74.00</td><td>-20.78</td><td>54.71</td><td>-1.49</td><td>Peak</td><td>315</td><td>346</td></tr><tr><td>3 *</td><td>2437.00</td><td>103.96</td><td></td><td></td><td>105.57</td><td>-1.61</td><td>Average</td><td>315</td><td>346</td></tr><tr><td>4 *</td><td>2437.00</td><td>114.21</td><td></td><td></td><td>115.82</td><td>-1.61</td><td>Peak</td><td>315</td><td>346</td></tr><tr><td>5</td><td>2483.50</td><td>44.36</td><td>54.00</td><td>-9.64</td><td>45.94</td><td>-1.58</td><td>Average</td><td>315</td><td>346</td></tr><tr><td>6</td><td>2483.50</td><td>56.21</td><td>74.00</td><td>-17.79</td><td>57.79</td><td>-1.58</td><td>Peak</td><td>315</td><td>346</td></tr><tr><td>7</td><td>4874.00</td><td>34.75</td><td>54.00</td><td>-19.25</td><td>29.42</td><td>5.33</td><td>Average</td><td>100</td><td>22</td></tr><tr><td>8</td><td>4874.00</td><td>47.62</td><td>74.00</td><td>-26.38</td><td>42.29</td><td>5.33</td><td>Peak</td><td>100</td><td>22</td></tr><tr><td>9</td><td>7311.00</td><td>42.35</td><td>54.00</td><td>-11.65</td><td>31.46</td><td>10.89</td><td>Average</td><td>268</td><td>301</td></tr><tr><td>10</td><td>7311.00</td><td>53.88</td><td>74.00</td><td>-20.12</td><td>42.99</td><td>10.89</td><td>Peak</td><td>268</td><td>301</td></tr></tbody></table> Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *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					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	2390.00	41.45	54.00	-12.55	42.94	-1.49	Average	315	346	2	2390.00	53.22	74.00	-20.78	54.71	-1.49	Peak	315	346	3 *	2437.00	103.96			105.57	-1.61	Average	315	346	4 *	2437.00	114.21			115.82	-1.61	Peak	315	346	5	2483.50	44.36	54.00	-9.64	45.94	-1.58	Average	315	346	6	2483.50	56.21	74.00	-17.79	57.79	-1.58	Peak	315	346	7	4874.00	34.75	54.00	-19.25	29.42	5.33	Average	100	22	8	4874.00	47.62	74.00	-26.38	42.29	5.33	Peak	100	22	9	7311.00	42.35	54.00	-11.65	31.46	10.89	Average	268	301	10	7311.00	53.88	74.00	-20.12	42.99	10.89	Peak	268	301
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																																																								
1	2390.00	41.45	54.00	-12.55	42.94	-1.49	Average	315	346																																																																																																								
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8	4874.00	47.62	74.00	-26.38	42.29	5.33	Peak	100	22																																																																																																								
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10	7311.00	53.88	74.00	-20.12	42.99	10.89	Peak	268	301																																																																																																								



Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):69			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2462						
Polarization	Vertical								
Test By :Brad Wu Temperature(°C):24 Humidity(%):69									
Level (dBuV/m)  Frequency (MHz)									
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level			reading			High	Table
		dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	*	2462.00	103.30		104.91	-1.61	Average	322	40
2	*	2462.00	113.43		115.04	-1.61	Peak	322	40
3		2483.50	51.66	54.00	-2.34	53.24	-1.58	Average	322
4		2483.50	65.00	74.00	-9.00	66.58	-1.58	Peak	322
5		4924.00	34.91	54.00	-19.09	29.44	5.47	Average	100
6		4924.00	47.82	74.00	-26.18	42.35	5.47	Peak	100
7		7386.00	43.65	54.00	-10.35	33.01	10.64	Average	261
8		7386.00	56.11	74.00	-17.89	45.47	10.64	Peak	261

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*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

Unwanted Emissions (Above 1GHz) for ax HE20

Modulation	ax HE20		Test Freq. (MHz)		2412	
Polarization	Horizontal					
Test By :Akun Chung Temperature(°C):25 Humidity(%):66						
Level (dBuV/m) </						

Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE20		Test Freq. (MHz)		2437	
Polarization	Vertical					
Test By :Akun Chung Temperature(°C):25 Humidity(%):66						
Level (dBuV/m)						



Modulation		ax HE20			Test Freq. (MHz)		2462			
Polarization		Horizontal								
Test By		:Akun Chung		Temperature(°C):25		Humidity(%):66				
Level (dBuV/m)										

Modulation		ax HE20			Test Freq. (MHz)		2462			
Polarization		Vertical								
Test By		:Akun Chung			Temperature(°C):25		Humidity(%):66			
Level (dBuV/m)										

Unwanted Emissions (Above 1GHz) for ax HE40

Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):25 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):66			
Level (dBUV/m)			



Modulation	ax HE40		Test Freq. (MHz)		2437	
Polarization	Horizontal					
Test By :Akun Chung Temperature(°C):25 Humidity(%):66						
Level (dBuV/m)						

Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):25 Humidity(%):66			
Level (dBUV/m) </			



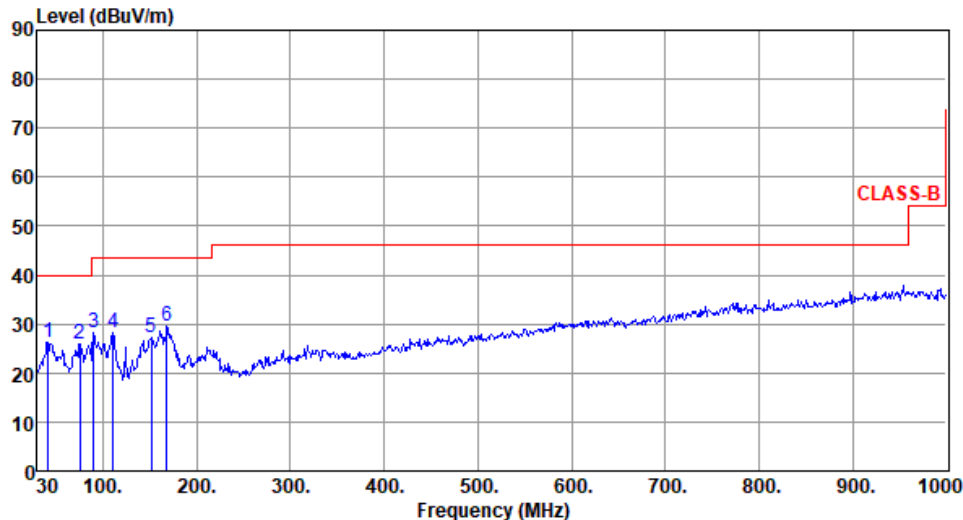
Modulation	ax HE40		Test Freq. (MHz)	2452	
Polarization	Horizontal				
Test By :Akun Chung Temperature(°C):25 Humidity(%):66					
Level (dBuV/m) <					

Modulation		ax HE40			Test Freq. (MHz)		2452			
Polarization		Vertical								
Test By		:Akun Chung			Temperature(°C):25		Humidity(%):66			
Level (dBuV/m)										



POE mode

Unwanted Emissions (Below 1GHz)

Modulation	11g	Test Freq. (MHz)	2412																																																																																
Polarization	Horizontal																																																																																		
Test By :Brad Wu Temperature(°C):24 Humidity(%):67																																																																																			
Level (dBuV/m)  <table><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>41.64</td><td>26.33</td><td>40.00</td><td>-13.67</td><td>34.86</td><td>-8.53</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>75.59</td><td>25.90</td><td>40.00</td><td>-14.10</td><td>37.95</td><td>-12.05</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>90.14</td><td>28.28</td><td>43.50</td><td>-15.22</td><td>42.79</td><td>-14.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>110.51</td><td>28.25</td><td>43.50</td><td>-15.25</td><td>39.70</td><td>-11.45</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>151.25</td><td>27.08</td><td>43.50</td><td>-16.42</td><td>35.60</td><td>-8.52</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>167.74</td><td>29.66</td><td>43.50</td><td>-13.84</td><td>38.33</td><td>-8.67</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	41.64	26.33	40.00	-13.67	34.86	-8.53	Peak	---	---	2	75.59	25.90	40.00	-14.10	37.95	-12.05	Peak	---	---	3	90.14	28.28	43.50	-15.22	42.79	-14.51	Peak	---	---	4	110.51	28.25	43.50	-15.25	39.70	-11.45	Peak	---	---	5	151.25	27.08	43.50	-16.42	35.60	-8.52	Peak	---	---	6	167.74	29.66	43.50	-13.84	38.33	-8.67	Peak	---	---
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																										
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg																																																																										
1	41.64	26.33	40.00	-13.67	34.86	-8.53	Peak	---	---																																																																										
2	75.59	25.90	40.00	-14.10	37.95	-12.05	Peak	---	---																																																																										
3	90.14	28.28	43.50	-15.22	42.79	-14.51	Peak	---	---																																																																										
4	110.51	28.25	43.50	-15.25	39.70	-11.45	Peak	---	---																																																																										
5	151.25	27.08	43.50	-16.42	35.60	-8.52	Peak	---	---																																																																										
6	167.74	29.66	43.50	-13.84	38.33	-8.67	Peak	---	---																																																																										
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.																																																																																			

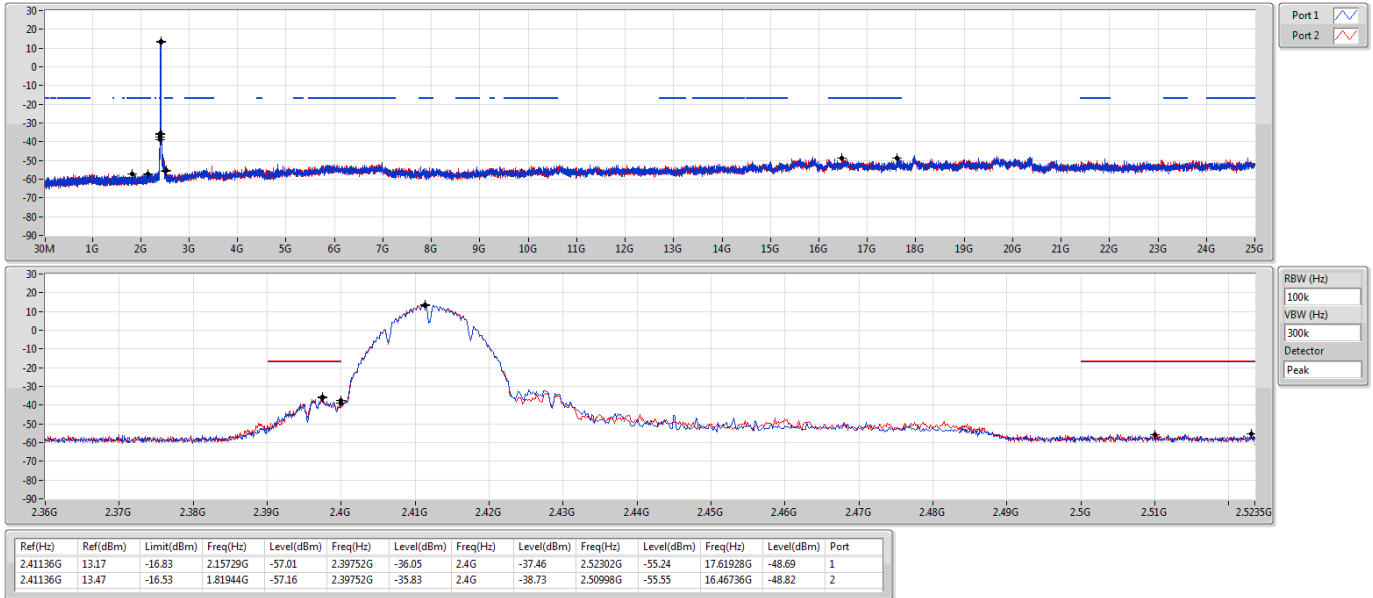


Modulation	11g	Test Freq. (MHz)	2412																																																																						
Polarization	Vertical																																																																								
Test By :Brad Wu Temperature(°C):24 Humidity(%):67																																																																									
Level (dBuV/m) <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>33.92</td><td>35.06</td><td>40.00</td><td>-4.94</td><td>44.62</td><td>-9.56</td><td>QP</td><td>100</td><td>185</td></tr><tr><td>2</td><td>43.45</td><td>35.16</td><td>40.00</td><td>-4.84</td><td>43.64</td><td>-8.48</td><td>QP</td><td>100</td><td>18</td></tr><tr><td>3</td><td>71.71</td><td>33.77</td><td>40.00</td><td>-6.23</td><td>44.84</td><td>-11.07</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>94.99</td><td>30.87</td><td>43.50</td><td>-12.63</td><td>44.93</td><td>-14.06</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>111.48</td><td>28.07</td><td>43.50</td><td>-15.43</td><td>39.41</td><td>-11.34</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>164.83</td><td>28.11</td><td>43.50</td><td>-15.39</td><td>36.67</td><td>-8.56</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	33.92	35.06	40.00	-4.94	44.62	-9.56	QP	100	185	2	43.45	35.16	40.00	-4.84	43.64	-8.48	QP	100	18	3	71.71	33.77	40.00	-6.23	44.84	-11.07	Peak	---	---	4	94.99	30.87	43.50	-12.63	44.93	-14.06	Peak	---	---	5	111.48	28.07	43.50	-15.43	39.41	-11.34	Peak	---	---	6	164.83	28.11	43.50	-15.39	36.67	-8.56	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
1	33.92	35.06	40.00	-4.94	44.62	-9.56	QP	100	185																																																																
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3	71.71	33.77	40.00	-6.23	44.84	-11.07	Peak	---	---																																																																
4	94.99	30.87	43.50	-12.63	44.93	-14.06	Peak	---	---																																																																
5	111.48	28.07	43.50	-15.43	39.41	-11.34	Peak	---	---																																																																
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802.11b_Nss1,(1Mbps)_2TX

CSEndB

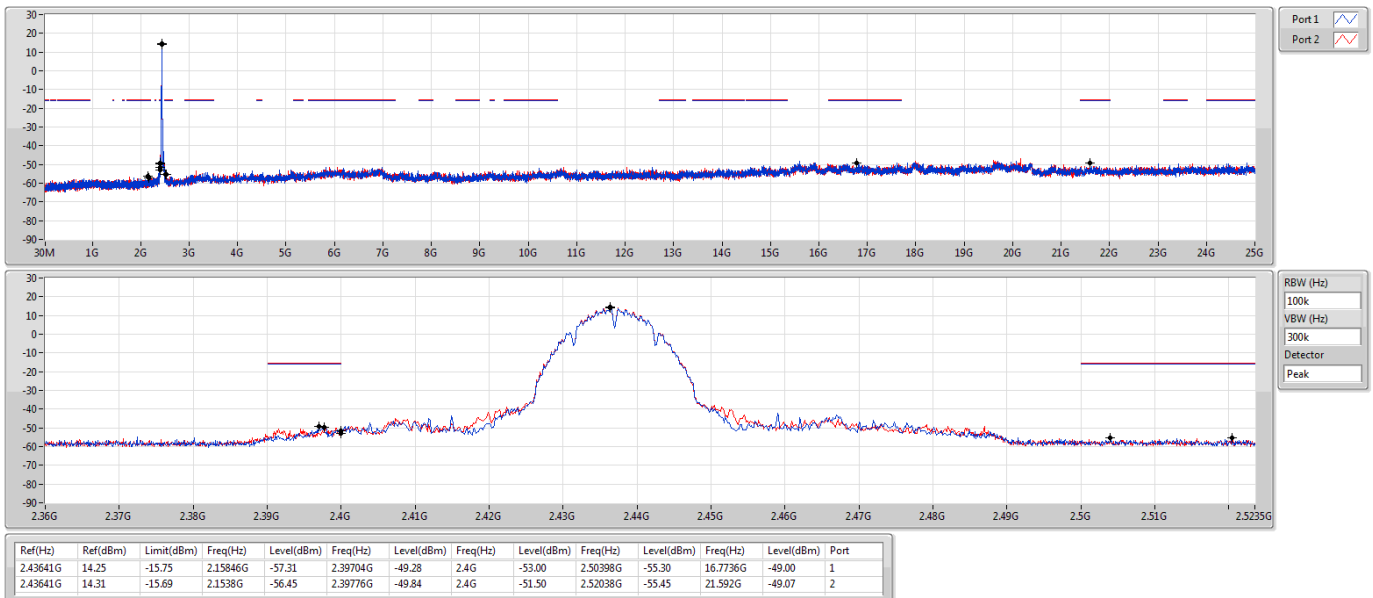
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802.11b_Nss1,(1Mbps)_2TX

CSEndB

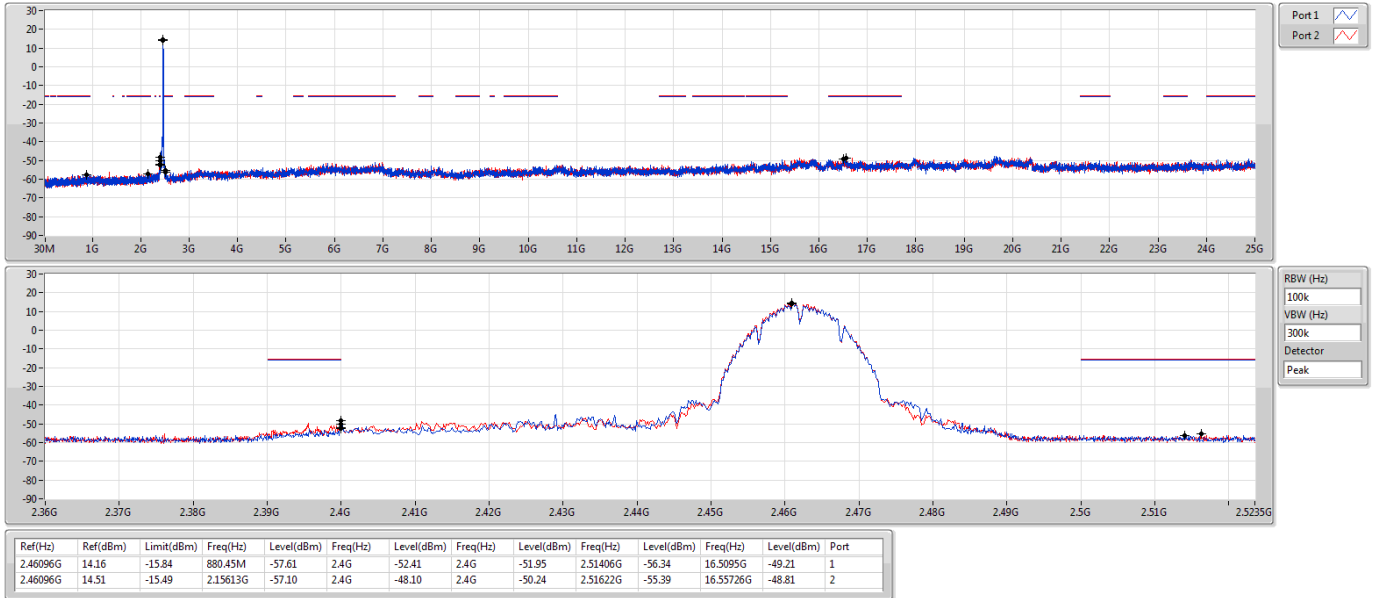
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802.11b_Nss1,(1Mbps)_2TX

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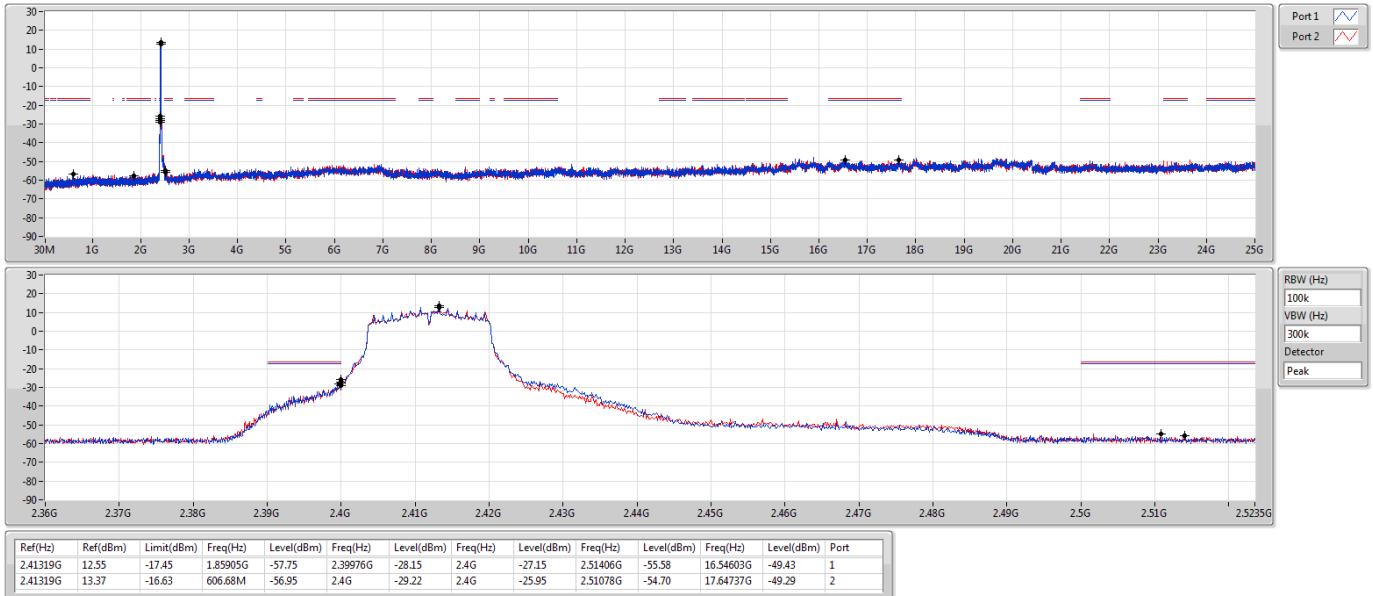
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802.11g_Nss1,(6Mbps)_2TX

CSEndB

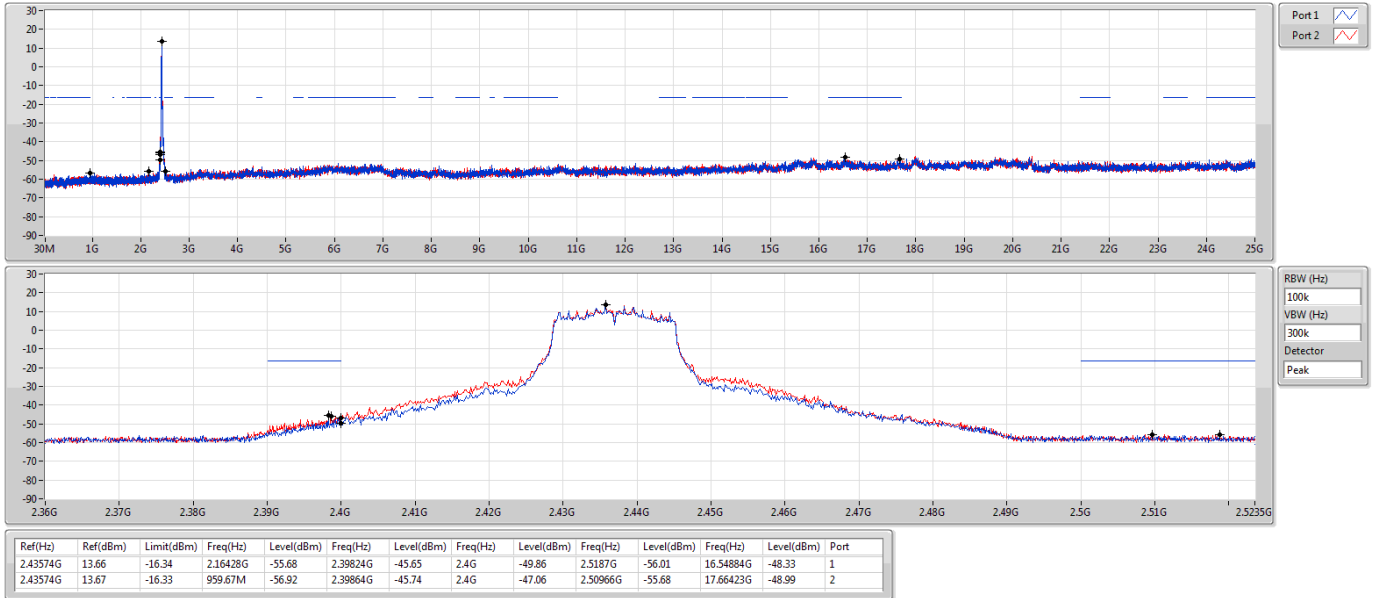
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802.11g_Nss1,(6Mbps)_2TX

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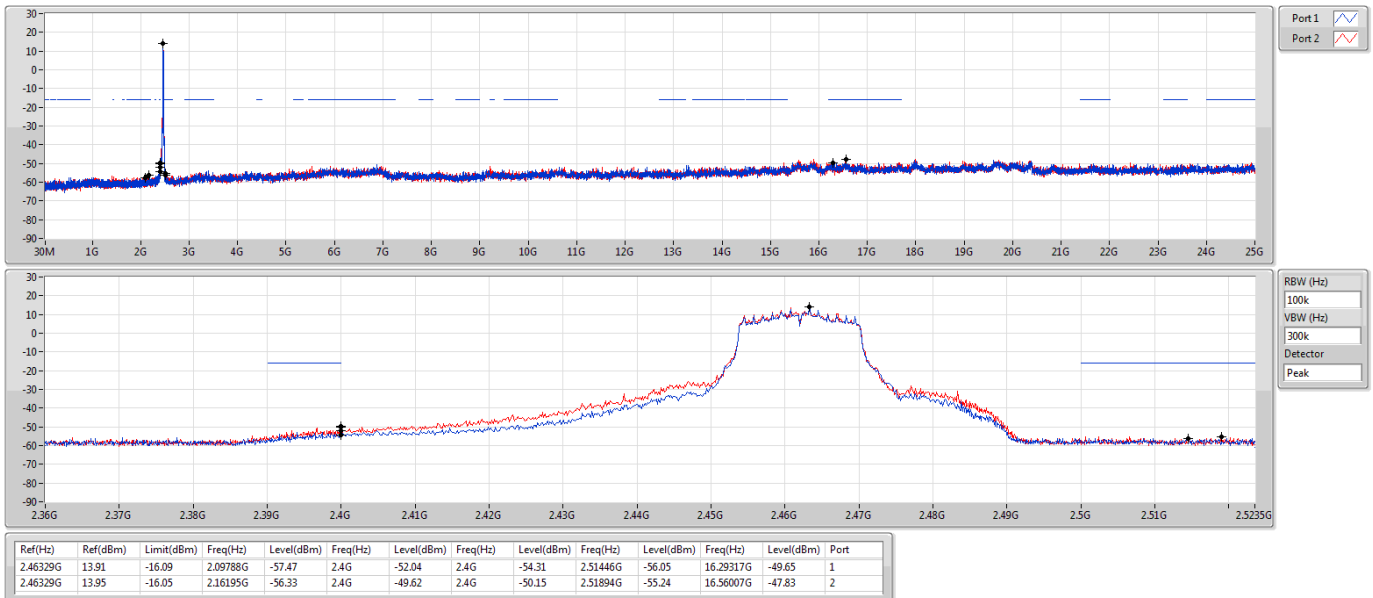
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802.11g_Nss1,(6Mbps)_2TX

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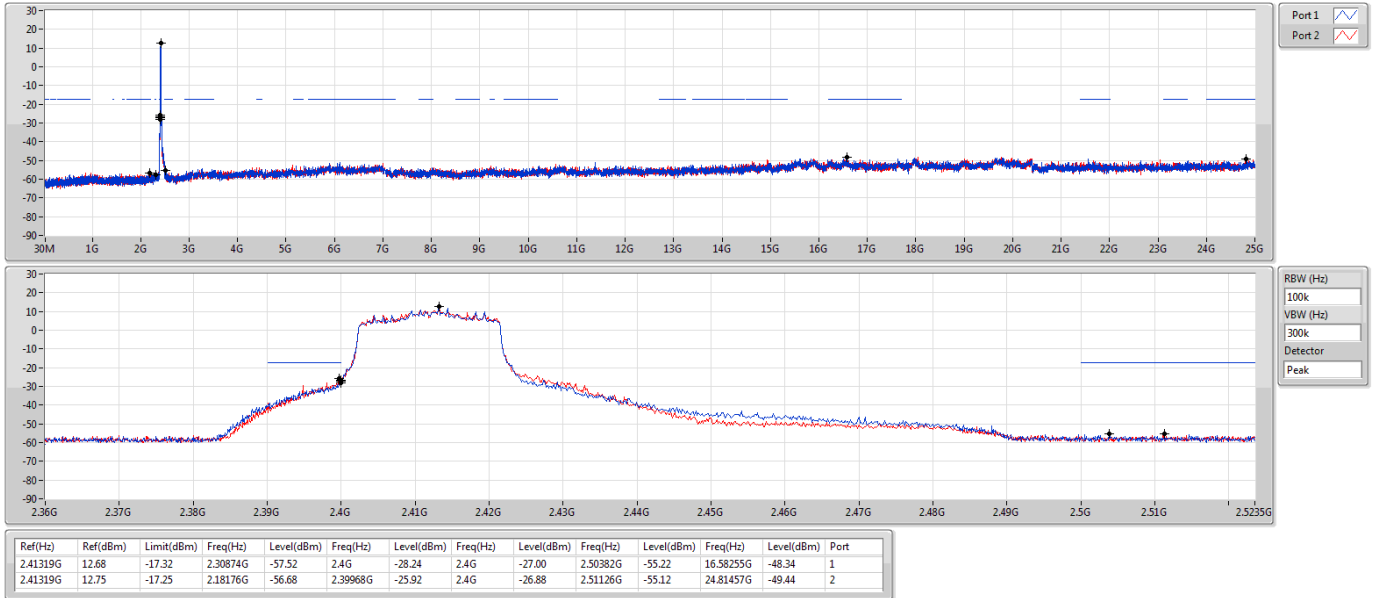
2462MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

CSEndB

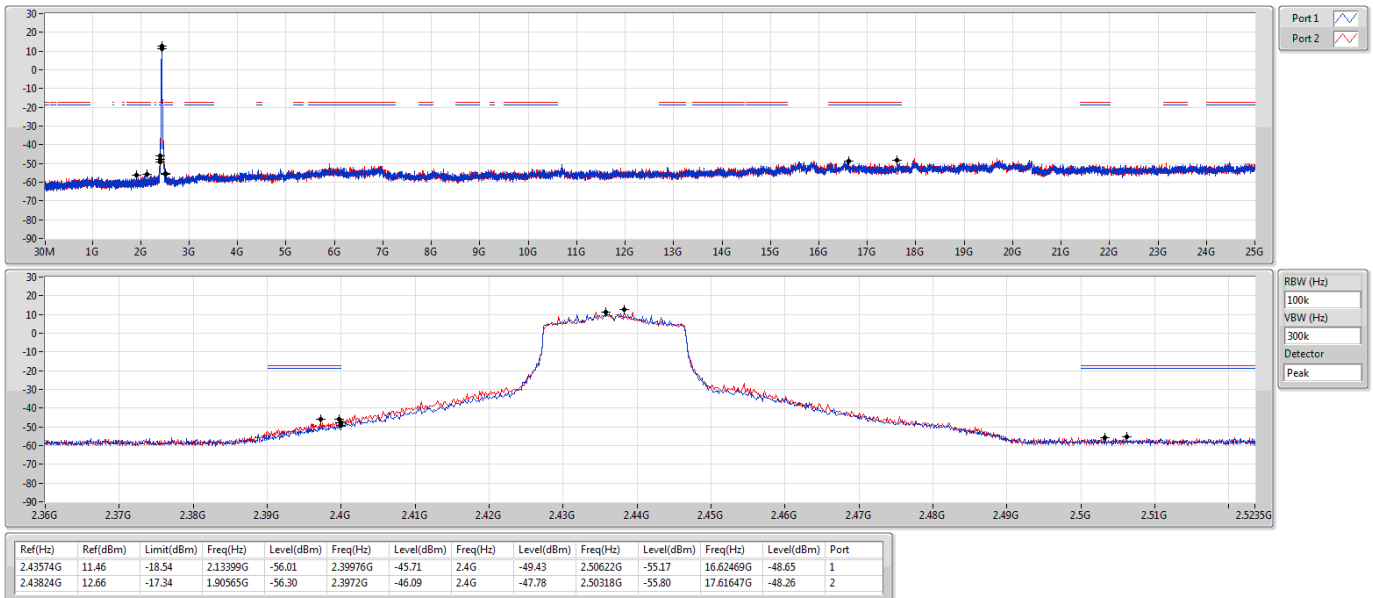
2412MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

CSEndB

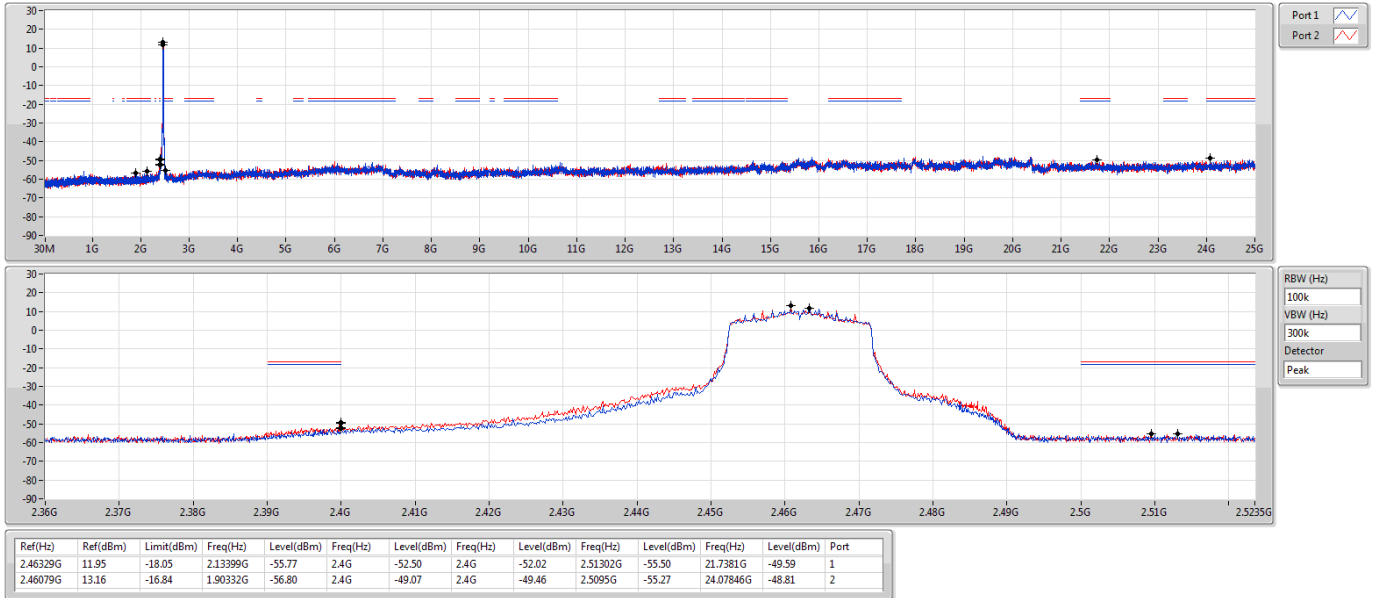
2437MHz



802.11ax HEW20_Nss2,(MCS0)_2TX

CSEndB

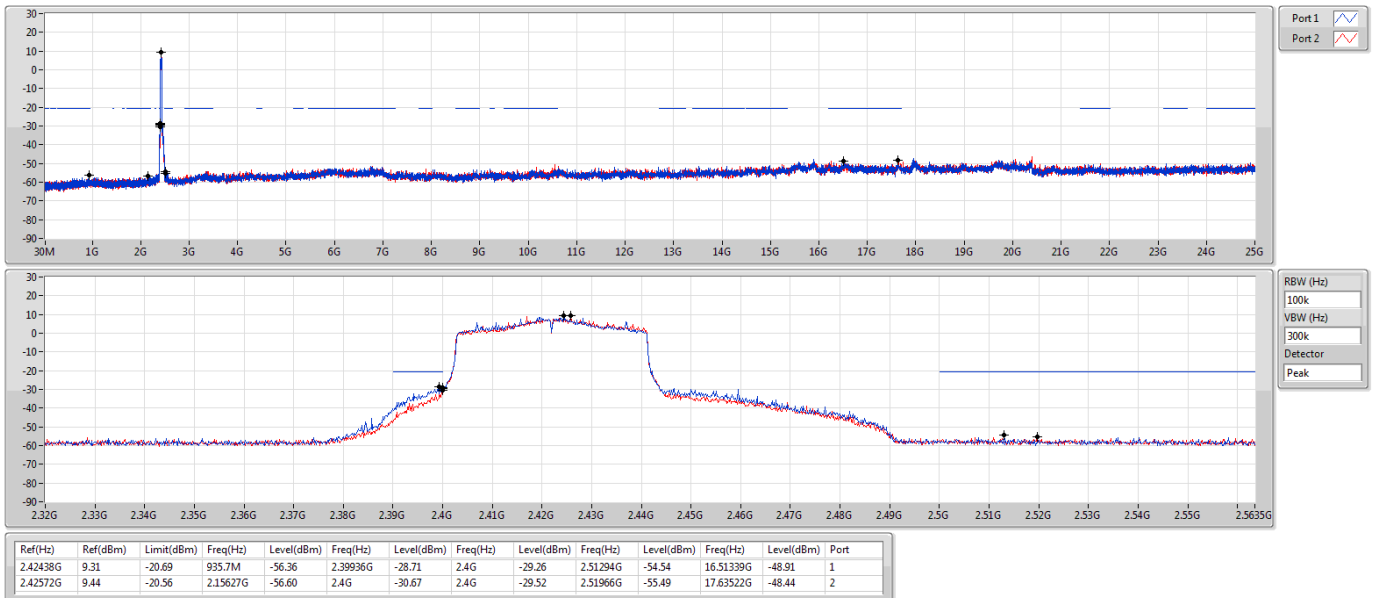
2462MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

CSEndB

2422MHz

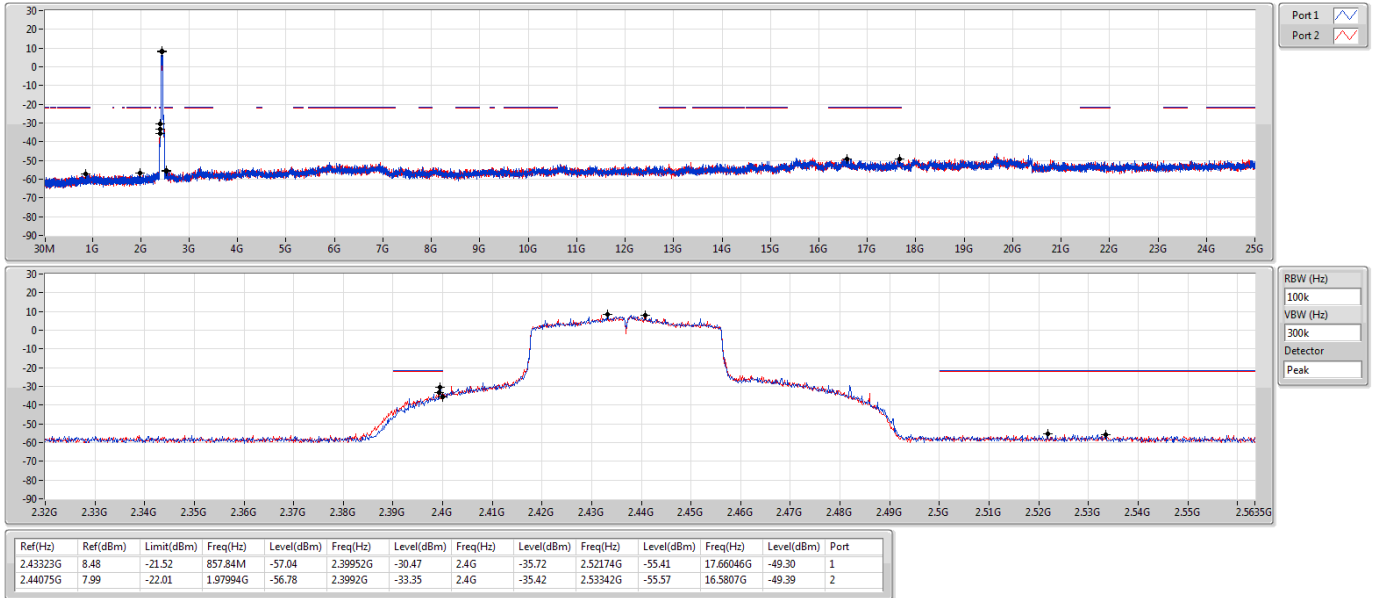




802.11ax HEW40_Nss2,(MCS0)_2TX

CSEndB

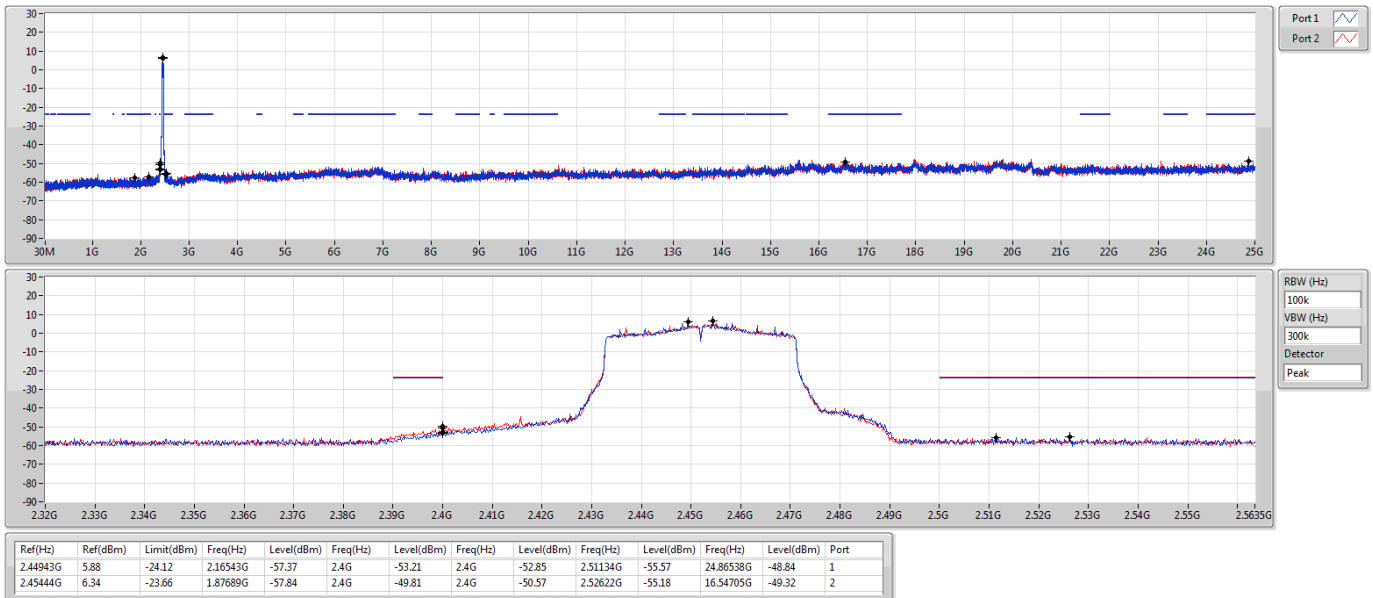
2437MHz



802.11ax HEW40_Nss2,(MCS0)_2TX

CSEndB

2452MHz





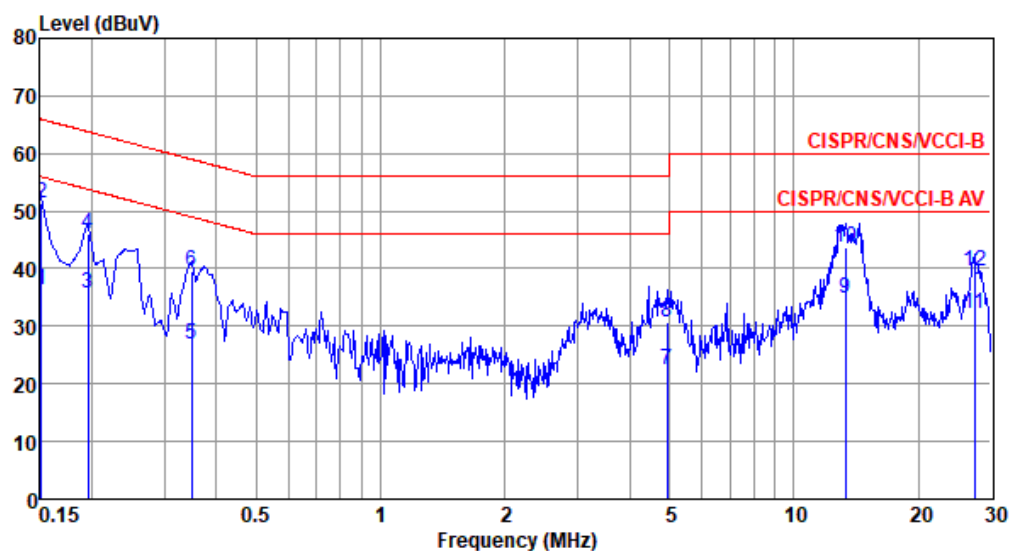
Adapter Mode

Modulation Mode	11g	Test Freq. (MHz)	2412
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 64%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.151	36.18	55.96	-19.78	26.22	9.68	0.08	0.20	Average
2*	0.151	51.24	65.96	-14.72	41.28	9.68	0.08	0.20	QP
3	0.195	35.70	53.80	-18.10	25.72	9.68	0.08	0.22	Average
4	0.195	46.06	63.80	-17.74	36.08	9.68	0.08	0.22	QP
5	0.348	26.77	49.00	-22.23	16.69	9.67	0.08	0.33	Average
6	0.348	39.48	59.00	-19.52	29.40	9.67	0.08	0.33	QP
7	4.926	22.30	46.00	-23.70	11.91	9.71	0.26	0.42	Average
8	4.926	30.79	56.00	-25.21	20.40	9.71	0.26	0.42	QP
9	13.337	34.69	50.00	-15.31	23.92	9.74	0.53	0.50	Average
10	13.337	43.79	60.00	-16.21	33.02	9.74	0.53	0.50	QP
11	27.416	32.26	50.00	-17.74	21.05	9.68	0.75	0.78	Average
12	27.416	39.57	60.00	-20.43	28.36	9.68	0.75	0.78	QP

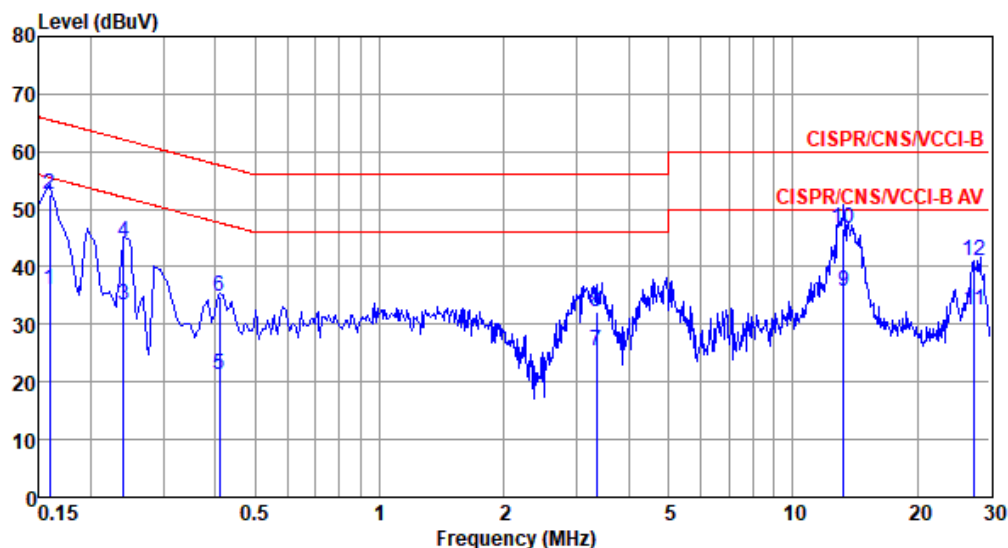
Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).



Modulation Mode	11g	Test Freq. (MHz)	2412
Power Phase	Neutral		

Test by : Joe Liao Temperature: 21°C Humidity: 64%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	36.12	55.52	-19.40	26.27	9.61	0.08	0.16	Average
2*	0.159	52.60	65.52	-12.92	42.75	9.61	0.08	0.16	QP
3	0.240	33.49	52.08	-18.59	23.62	9.61	0.08	0.18	Average
4	0.240	44.22	62.08	-17.86	34.35	9.61	0.08	0.18	QP
5	0.410	21.21	47.64	-26.43	11.33	9.61	0.08	0.19	Average
6	0.410	34.81	57.64	-22.83	24.93	9.61	0.08	0.19	QP
7	3.346	25.31	46.00	-20.69	15.15	9.63	0.21	0.32	Average
8	3.346	32.15	56.00	-23.85	21.99	9.63	0.21	0.32	QP
9	13.267	35.83	50.00	-14.17	25.14	9.73	0.52	0.44	Average
10	13.267	46.51	60.00	-13.49	35.82	9.73	0.52	0.44	QP
11	27.562	32.47	50.00	-17.53	21.25	9.77	0.75	0.70	Average
12	27.562	40.91	60.00	-19.09	29.69	9.77	0.75	0.70	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).



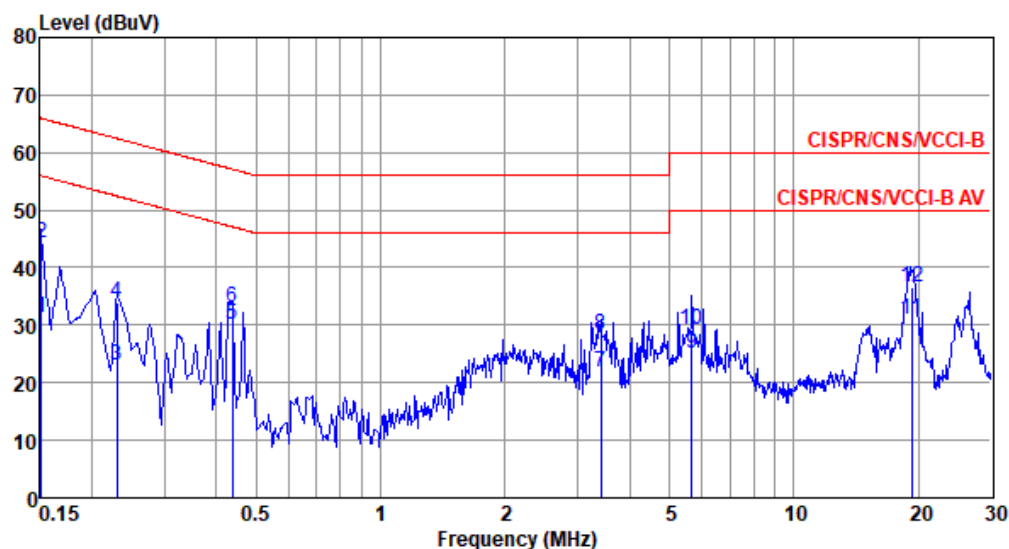
POE Mode

Modulation Mode	11g	Test Freq. (MHz)	2412
Power Phase	Line		

Test by : Joe Liao

Temperature: 21°C

Humidity: 64%



	Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark
	MHz	dBuV	Line	Limit	Level	dB	loss	dB	
			dBuV	dB	dBuV		dB		
1	0.151	31.22	55.96	-24.74	21.46	9.68	0.08	0.00	Average
2	0.151	44.41	65.96	-21.55	34.65	9.68	0.08	0.00	QP
3	0.230	22.95	52.44	-29.49	13.19	9.68	0.08	0.00	Average
4	0.230	34.00	62.44	-28.44	24.24	9.68	0.08	0.00	QP
5*	0.437	30.01	47.11	-17.10	20.25	9.67	0.09	0.00	Average
6	0.437	32.98	57.11	-24.13	23.22	9.67	0.09	0.00	QP
7	3.417	21.93	46.00	-24.07	12.02	9.70	0.21	0.00	Average
8	3.417	28.20	56.00	-27.80	18.29	9.70	0.21	0.00	QP
9	5.653	25.24	50.00	-24.76	15.23	9.71	0.30	0.00	Average
10	5.653	29.25	60.00	-30.75	19.24	9.71	0.30	0.00	QP
11	19.326	30.86	50.00	-19.14	20.48	9.73	0.65	0.00	Average
12	19.326	36.53	60.00	-23.47	26.15	9.73	0.65	0.00	QP

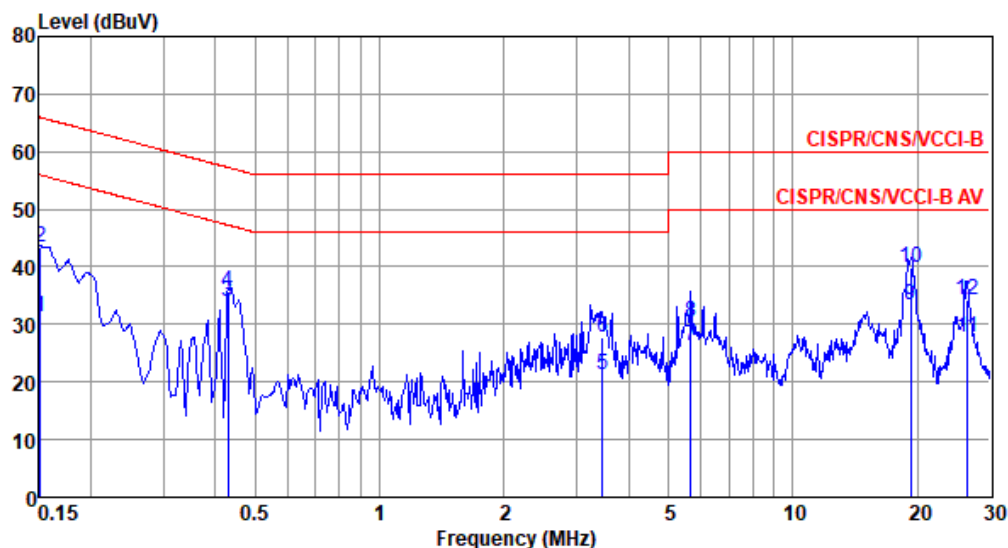
Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).



Modulation Mode	11g	Test Freq. (MHz)	2412
Power Phase	Neutral		

Test by : Joe Liao Temperature: 21°C Humidity: 64%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.151	31.24	55.96	-24.72	21.55	9.61	0.08	0.00	Average
2	0.151	43.35	65.96	-22.61	33.66	9.61	0.08	0.00	QP
3*	0.431	33.85	47.24	-13.39	24.15	9.61	0.09	0.00	Average
4	0.431	35.71	57.24	-21.53	26.01	9.61	0.09	0.00	QP
5	3.454	21.27	46.00	-24.73	11.42	9.64	0.21	0.00	Average
6	3.454	27.81	56.00	-28.19	17.96	9.64	0.21	0.00	QP
7	5.653	26.30	50.00	-23.70	16.34	9.66	0.30	0.00	Average
8	5.653	30.38	60.00	-29.62	20.42	9.66	0.30	0.00	QP
9	19.326	33.30	50.00	-16.70	22.86	9.79	0.65	0.00	Average
10	19.326	40.00	60.00	-20.00	29.56	9.79	0.65	0.00	QP
11	26.418	27.83	50.00	-22.17	17.33	9.78	0.72	0.00	Average
12	26.418	34.30	60.00	-25.70	23.80	9.78	0.72	0.00	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).