

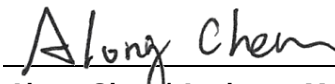
FCC Test Report

FCC ID : 2AJAC-AN520API
Equipment : Araknis Networks 520-series Wi-Fi 6 AX3000
Indoor Wireless Access Point
Model No. : AN-520-AP-I
Brand Name : Araknis Networks
Applicant : Snap One, LLC
Address : 1800 Continental Blvd Suite 200-300 Charlotte,
North Carolina 28273 USA
Standard : 47 CFR FCC Part 15.247
Received Date : Feb. 24, 2022
Tested Date : Apr. 13 ~ Apr. 26, 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:

Approved by:


Along Chen / Assistant Manager

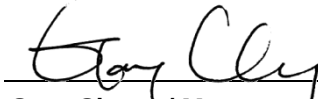

Gary Chang / Manager

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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
FR222403AC	Rev. 01	Initial issue	Jun. 09, 2022
FR222403AC	Rev. 02	Adding front end module information.	Jun. 28, 2022

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.529MHz 41.21 (Margin -4.79dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2390.00MHz 52.98 (Margin -1.02dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: 26.71	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
2400-2483.5	ax (HE20)	2412-2462	1-11 [11]	2	MCS 0-11
2400-2483.5	ax (HE40)	2422-2452	3-9 [7]	2	MCS 0-11

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.
 Note 2: DSSS-DBPSK, DQPSK, CCK modulation
 OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation.

1.1.2 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	2.4G-1	PIFA	UFL	5.66	---	---	---	---
2	2.4G-2	PIFA	UFL	6.75	---	---	---	---
3	5G-1	PIFA	UFL	---	4.9	5.1	5.8	5.5
4	5G-2	PIFA	UFL	---	5.1	5	5.25	5.13

1.1.3 Source of Front End Module

Source	2.4 GHz Front End Module	5 GHz Front End Module
Source A	Brand: Kxcomtech Model: KCT8248HE	Brand: Kxcomtech Model: KCT8548HE
Source B	Brand: Qorvo Model: QPF4288ATR13	Brand: Qorvo Model: QPF4588ATR13-5K

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12V from AC adapter 54V from POE
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Note: The above power supplies are not bundled in market.

1.1.5 Accessories

Accessories		
No.	Equipment	Description
1	RJ45 cable	0.24m non-shielded without core

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	QPSR, V5.0-00197		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	64.90%	1.88
	11g	94.56%	0.24
	ax HE20-OFDMA	92.27%	0.35
	ax HE40-OFDMA	86.01%	0.65

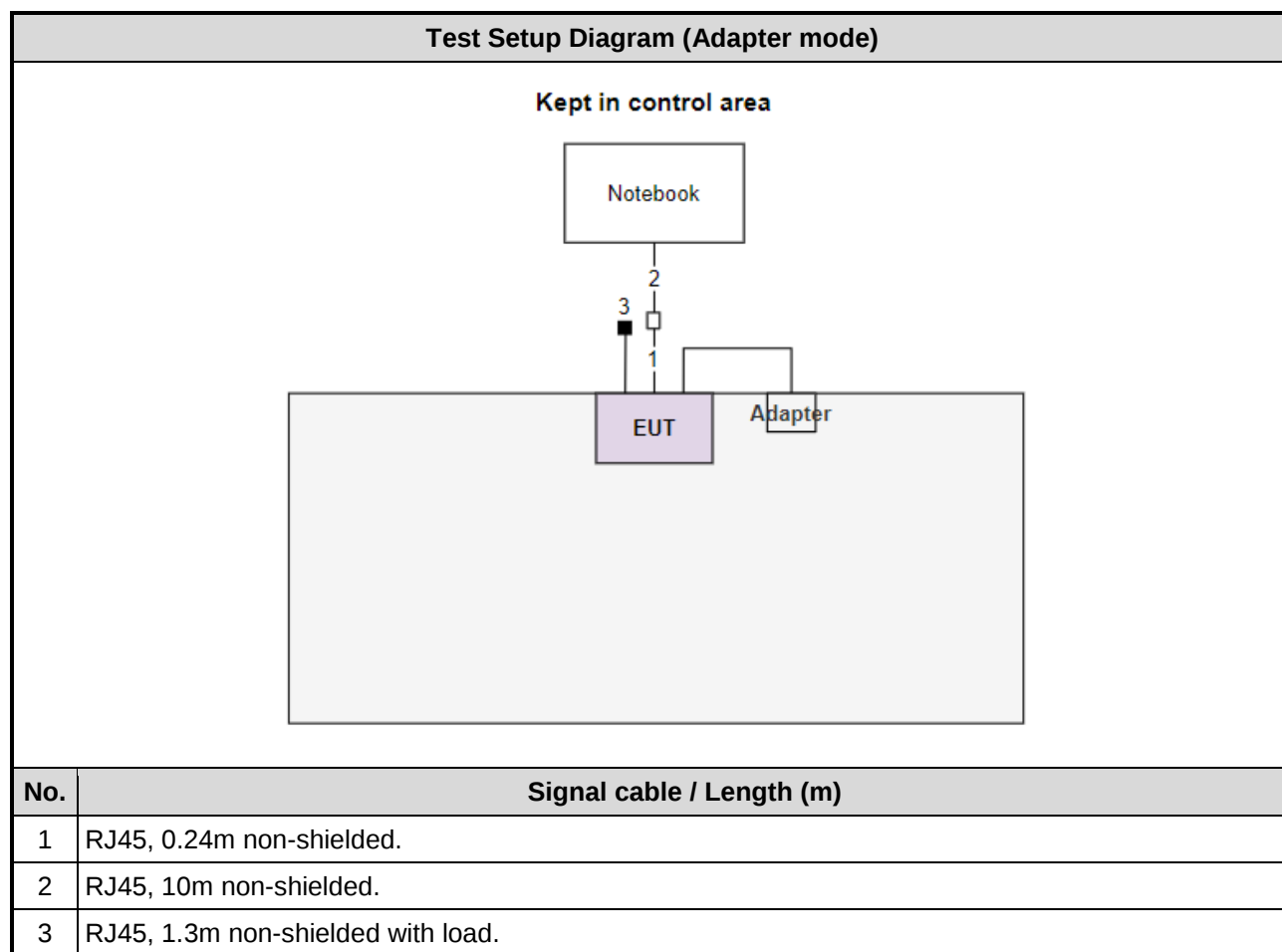
1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	21.5
11b	2437	21.5
11b	2462	21.5
11g	2412	22.5
11g	2437	24
11g	2462	22.5
ax HE20-OFDMA	2412	22.5
ax HE20-OFDMA	2437	24
ax HE20-OFDMA	2462	22.5
ax HE40-OFDMA	2422	20.5
ax HE40-OFDMA	2437	21.5
ax HE40-OFDMA	2452	20.5

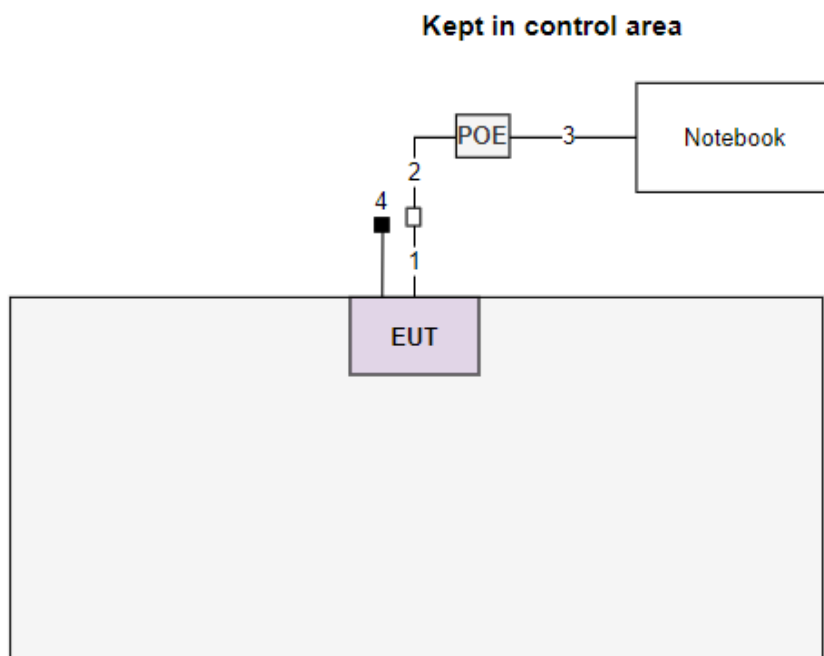
1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5470	DoC	---
2	Adapter	ASIAN POWER DEVICES INC.	WA-36N12FU	---	Remarks: I/P: 100-240V~, 50~60Hz, 0.9A Max. O/P: 12V=3.0A Note 1: Provided by applicant. Note 2: The adapter has 2 models. Model: WA-36N12FU (Undetachable plug) Model: WA-36N12R (Detachable plug)
3	Adapter	ASIAN POWER DEVICES INC.	WA-48B12R	---	Remarks: I/P: 100-240V~, 50~60Hz, 1.5A Max. O/P: 12V=4A 48W Note 1: Provided by applicant. Note 2: The adapter has 2 models. Model: WA-48B12R (Detachable plug) Model: WA-48B12FU (Undetachable plug)
4	POE	EnGenius	EPA5006GAT	---	Remarks: I/P: 100-240V~, 50~60Hz, 0.8A O/P: 54V=0.6A (Provided by applicant.)

1.3 Test Setup Chart



Test Setup Diagram (POE mode)



No.	Signal cable / Length (m)
1	RJ45, 0.24m non-shielded.
2	RJ45, 10m non-shielded.
3	RJ45, 1.3m non-shielded.
4	RJ45, 1.3m non-shielded with load.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Apr. 26, 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	101295	Jan. 12, 2022	Jan. 11, 2023
LISN (Support Unit)	SCHWARZBECK	NSLK 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	04	May 25, 2021	May 24, 2022
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	Apr. 13 ~ Apr. 22, 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	VULB9168-685	May. 06, 2021	May. 05, 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	Apr. 25, 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	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
- ISSED#: 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	2437	6 Mbps	1, 2
Unwanted Emissions ≤ 1GHz	11g	2437	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-OFDMA	2412 / 2437 / 2462	MCS 0	
Power spectral density	ax HE40-OFDMA	2422 / 2437 / 2452	MCS 0	
Beamforming mode				
Conducted Output Power	ax HE20-OFDMA ax HE40-OFDMA	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	1
NOTE:				
1. Source of front end module A and B had been covered during the pretest and found that Source of front end module A was the worst case and was chosen for final test.				
2. Adapter (model: WA-36N12FU) was the worst case and was selected for final testing.				
3. Test configurations are listed as below:				
1) Configuration 1: POE mode				
2) Configuration 2: Adapter 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

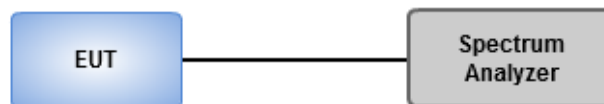
6dB Bandwidth

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	23°C / 67%	Tested By	Aska Huang
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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

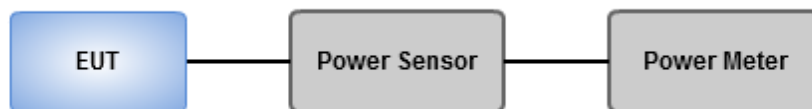
Fixed, point to point operations

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	23°C / 67%	Tested By	Aska Huang
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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.

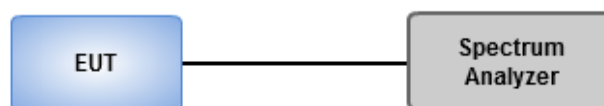
Average PSD, duty cycle $\geq 98\%$

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	23°C / 67%	Tested By	Aska Huang
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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

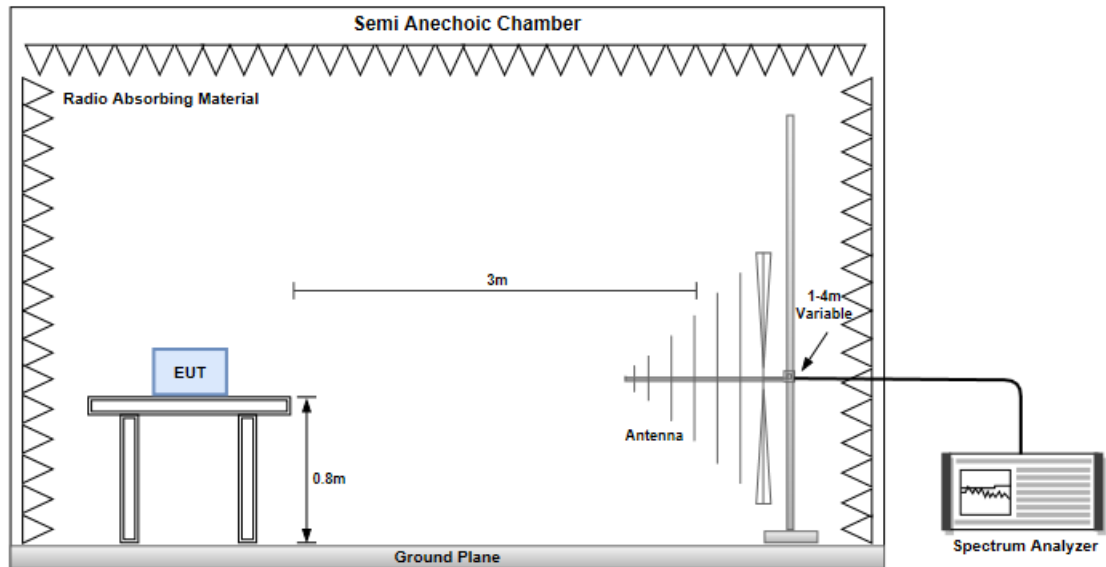
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

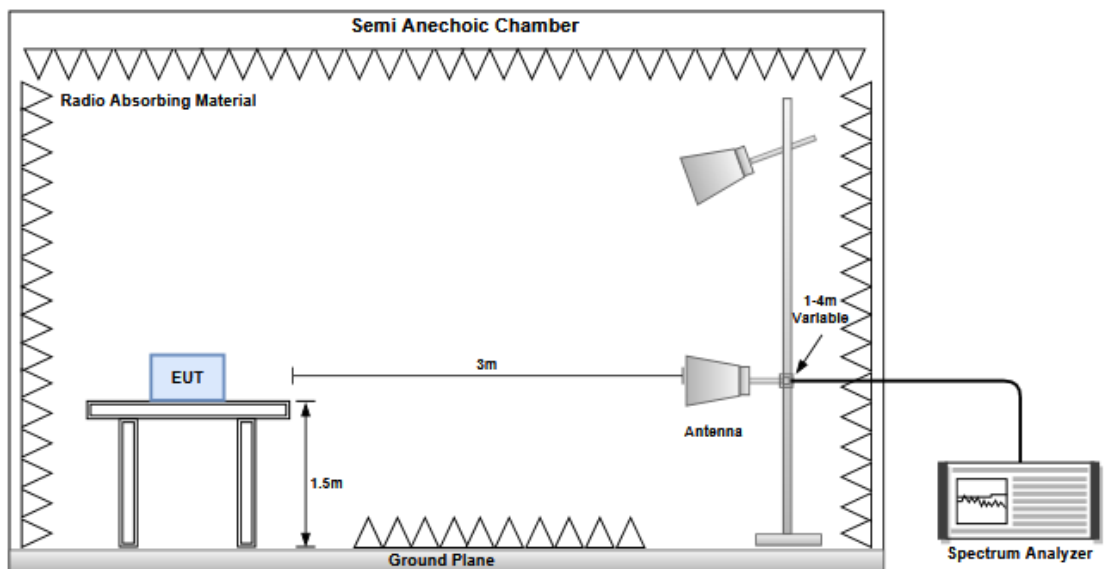
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

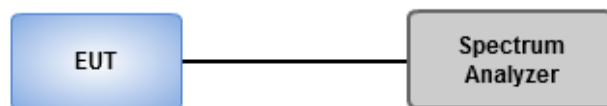
Reference level measurement

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	23°C / 67%	Tested By	Aska Huang
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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

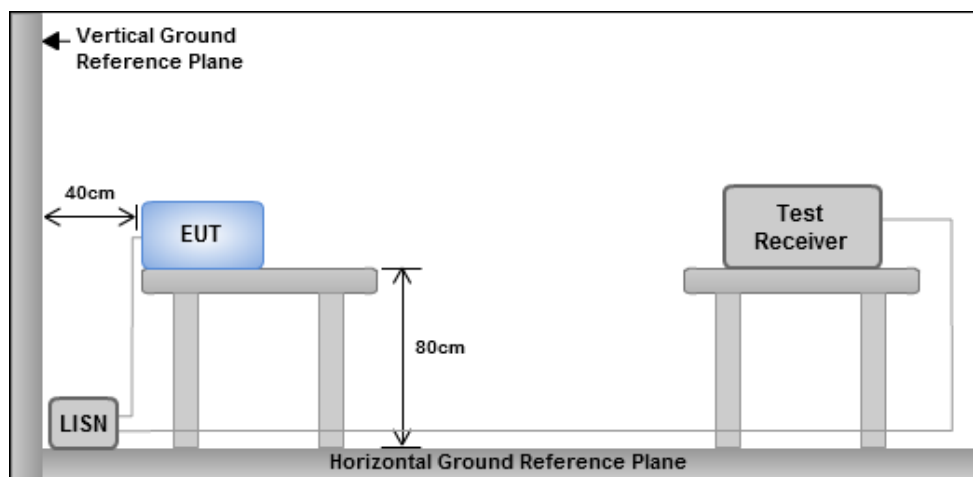
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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	8.623M	13.242M	13M2G1D	6.087M	12.735M
802.11g_Nss1,(6Mbps)_2TX	16.014M	16.281M	16M3D1D	10.435M	16.064M
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	17.971M	18.886M	18M9D1D	11.304M	18.669M
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	34.203M	37.627M	37M6D1D	28.696M	37.337M

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

Result

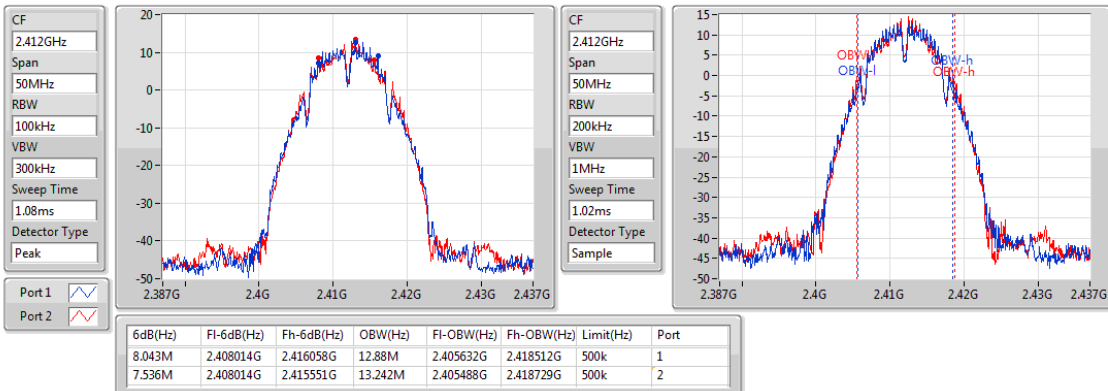
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	8.043M	12.88M	7.536M	13.242M
2437MHz	Pass	500k	6.087M	13.242M	8.623M	12.808M
2462MHz	Pass	500k	7.536M	13.242M	8.623M	12.735M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.145M	16.281M	15.072M	16.136M
2437MHz	Pass	500k	13.913M	16.208M	10.435M	16.136M
2462MHz	Pass	500k	16.014M	16.281M	13.841M	16.064M
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	500k	12.536M	18.813M	17.464M	18.669M
2437MHz	Pass	500k	11.304M	18.886M	16.667M	18.669M
2462MHz	Pass	500k	14.058M	18.813M	17.971M	18.813M
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	500k	32.464M	37.482M	34.203M	37.337M
2437MHz	Pass	500k	28.696M	37.627M	33.913M	37.482M
2452MHz	Pass	500k	32.464M	37.337M	31.304M	37.627M

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

802.11b_Nss1,(1Mbps)_2TX

EBW

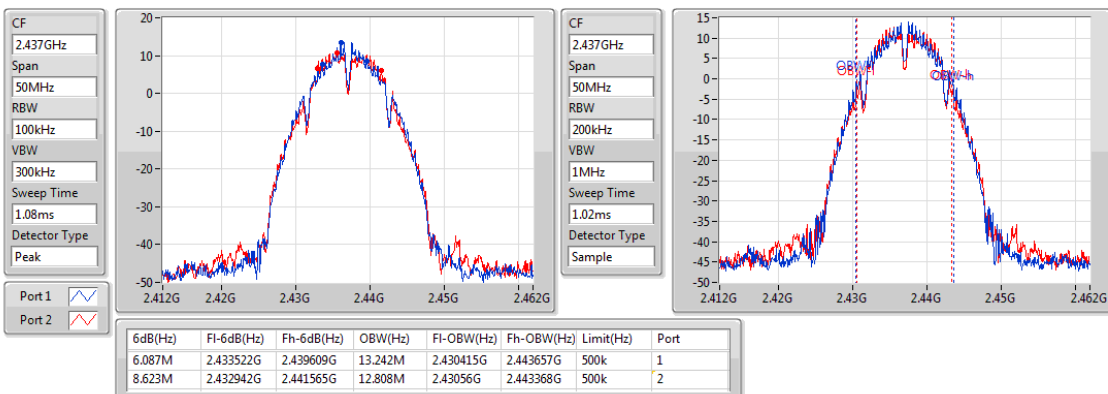
2412MHz



802.11b_Nss1,(1Mbps)_2TX

EBW

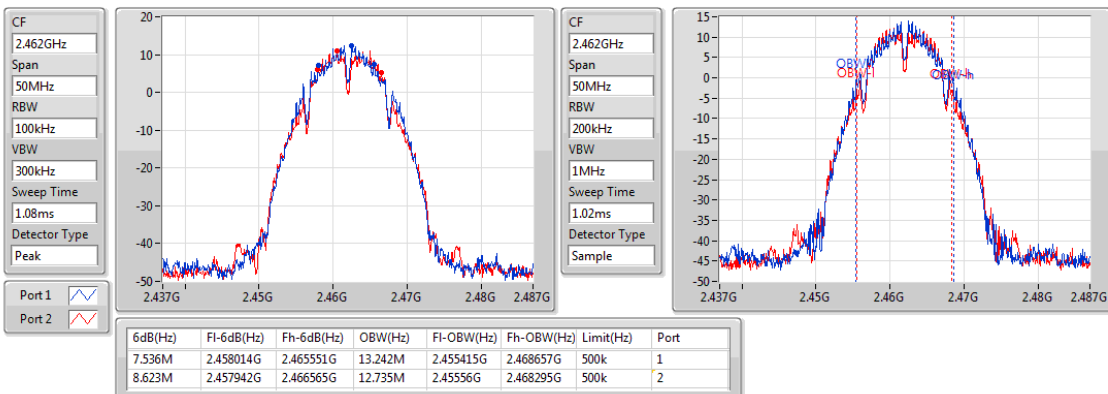
2437MHz



802.11b_Nss1,(1Mbps)_2TX

EBW

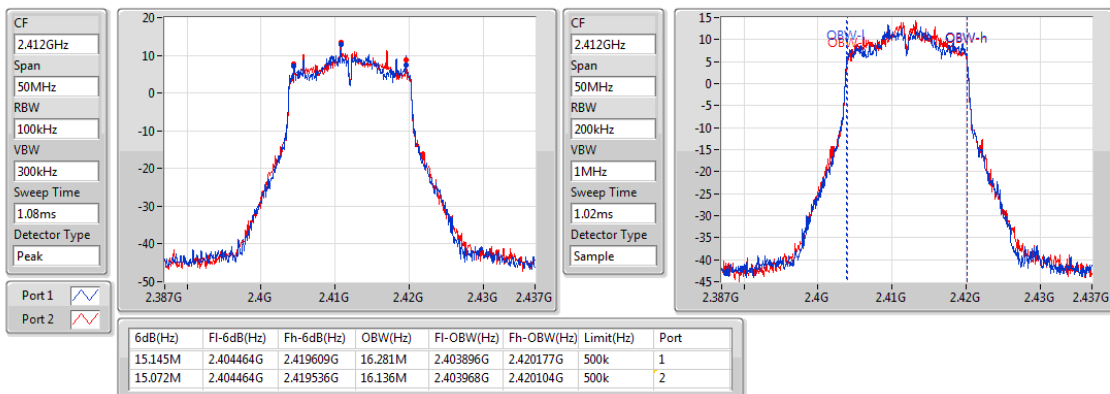
2462MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

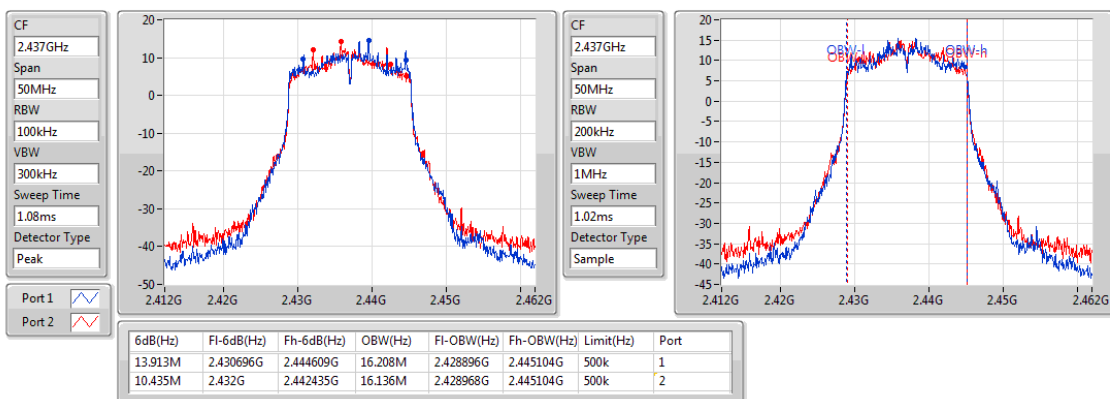
2412MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

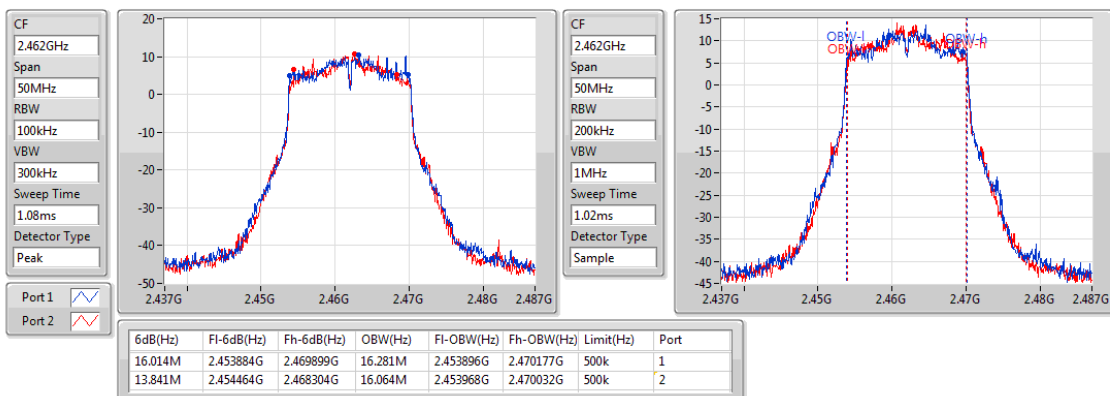
2437MHz



802.11g_Nss1,(6Mbps)_2TX

EBW

2462MHz

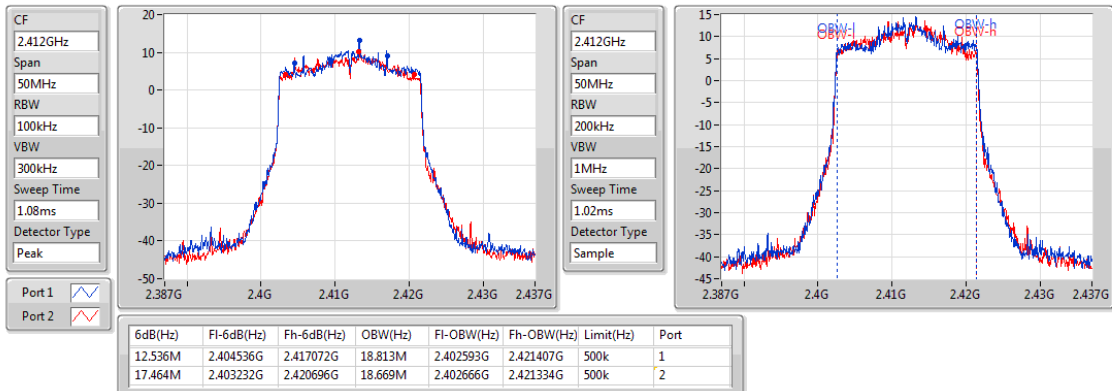




802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

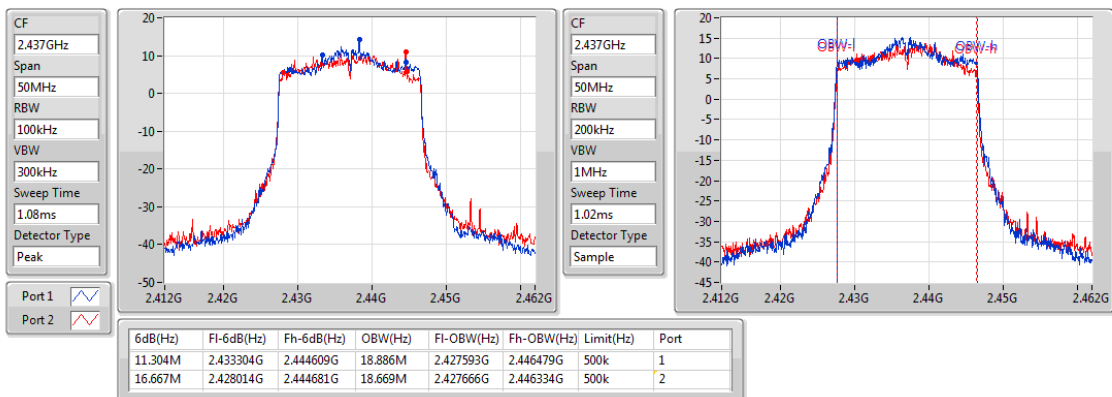
2412MHz



802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

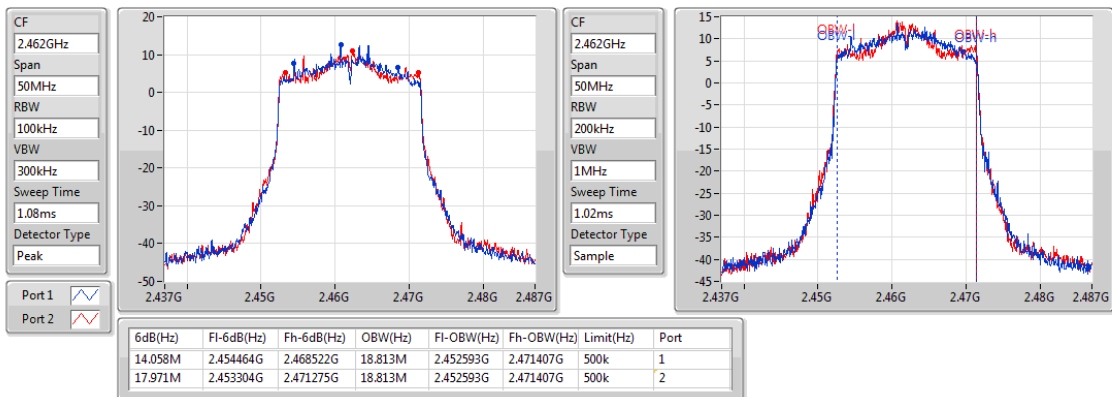
2437MHz



802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2462MHz

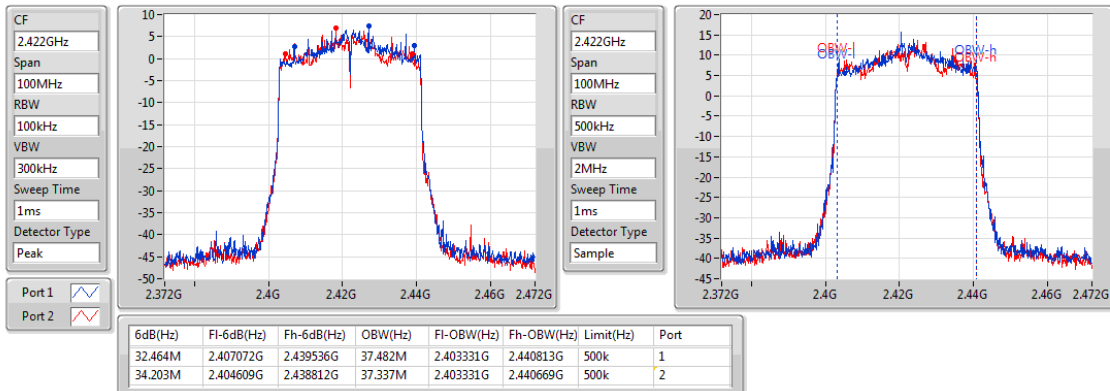




802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

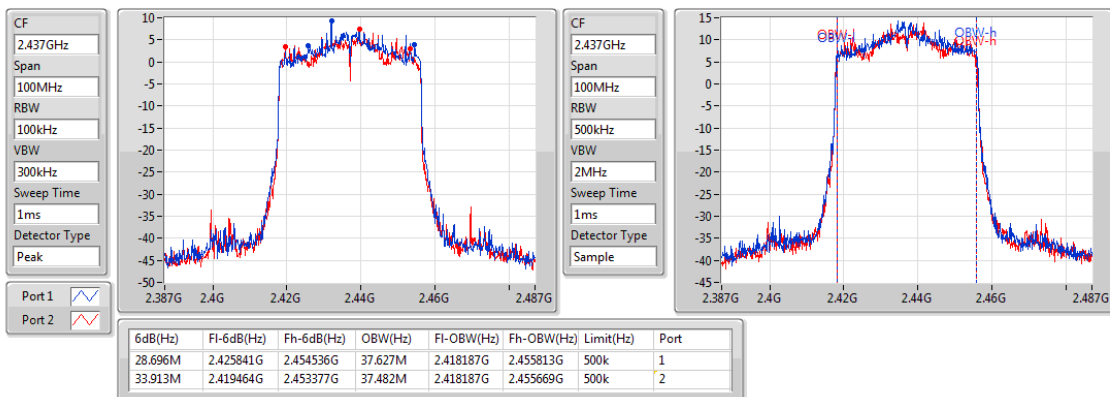
2422MHz



802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

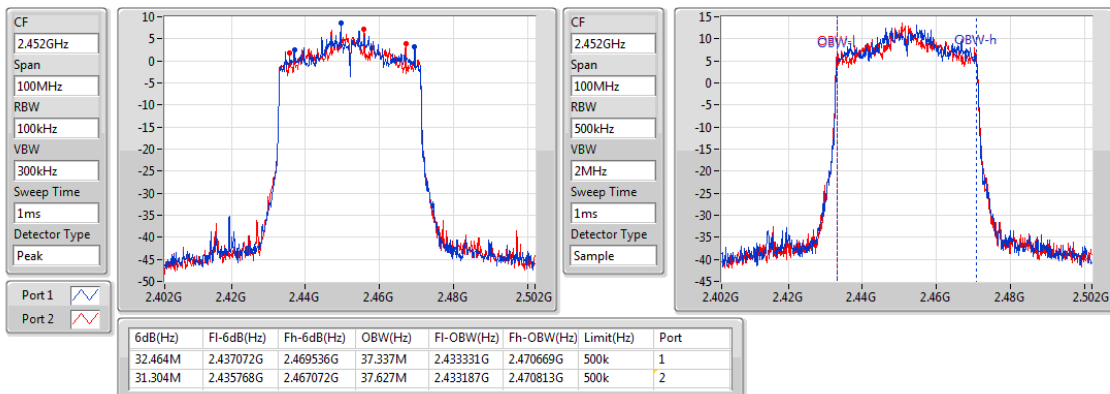
2437MHz



802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2452MHz



**Non-beamforming mode****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	24.32	0.27040
802.11g_Nss1,(6Mbps)_2TX	26.71	0.46881
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	26.47	0.44361
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	24.07	0.25527

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	6.75	21.35	21.26	24.32	29.25	31.07	36.00
2437MHz	Pass	6.75	20.99	21.24	24.13	29.25	30.88	36.00
2462MHz	Pass	6.75	20.85	21.26	24.07	29.25	30.82	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	6.75	22.71	22.35	25.54	29.25	32.29	36.00
2437MHz	Pass	6.75	23.74	23.65	26.71	29.25	33.46	36.00
2462MHz	Pass	6.75	21.63	22.65	25.18	29.25	31.93	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2412MHz	Pass	6.75	22.1	22.41	25.27	29.25	32.02	36.00
2437MHz	Pass	6.75	23.53	23.38	26.47	29.25	33.22	36.00
2462MHz	Pass	6.75	21.25	22.49	24.92	29.25	31.67	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2422MHz	Pass	6.75	20.28	20.11	23.21	29.25	29.96	36.00
2437MHz	Pass	6.75	20.75	21.35	24.07	29.25	30.82	36.00
2452MHz	Pass	6.75	19.52	20.46	23.03	29.25	29.78	36.00

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

**Beamforming mode****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	23.46	0.22182
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	21.06	0.12764

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2412MHz	Pass	9.23	19.09	19.4	22.26	26.77	31.49	36.00
2437MHz	Pass	9.23	20.52	20.37	23.46	26.77	32.69	36.00
2462MHz	Pass	9.23	18.24	19.48	21.91	26.77	31.14	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-	-	-
2422MHz	Pass	9.23	17.27	17.1	20.20	26.77	29.43	36.00
2437MHz	Pass	9.23	17.74	18.34	21.06	26.77	30.29	36.00
2452MHz	Pass	9.23	16.51	17.45	20.02	26.77	29.25	36.00

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

DG = Directional Gain = $10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$;

Ant. No.	Antenna Gain (dBi)
1	5.66
2	6.75
Directional Gain (dBi)	9.23



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-2.69
802.11g_Nss1,(6Mbps)_2TX	-2.92
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-5.52
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-10.21

RBW= 3 kHz

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	9.23	-6.15	-5.18	-2.69	4.77
2437MHz	Pass	9.23	-4.03	-6.52	-2.91	4.77
2462MHz	Pass	9.23	-5.66	-6.05	-3.49	4.77
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	9.23	-7.35	-6.11	-4.45	4.77
2437MHz	Pass	9.23	-6.24	-5.43	-2.92	4.77
2462MHz	Pass	9.23	-7.79	-6.72	-4.54	4.77
802.11ax HEW20_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2412MHz	Pass	9.23	-7.92	-9.91	-6.65	4.77
2437MHz	Pass	9.23	-7.47	-9.12	-5.52	4.77
2462MHz	Pass	9.23	-9.50	-7.88	-6.00	4.77
802.11ax HEW40_Nss1,(MCS0)_2TX-OFDMA	-	-	-	-	-	-
2422MHz	Pass	9.23	-11.81	-14.21	-10.21	4.77
2437MHz	Pass	9.23	-12.45	-13.83	-10.98	4.77
2452MHz	Pass	9.23	-11.97	-12.93	-10.34	4.77

DG = Directional Gain;

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

RBW= 3 kHz

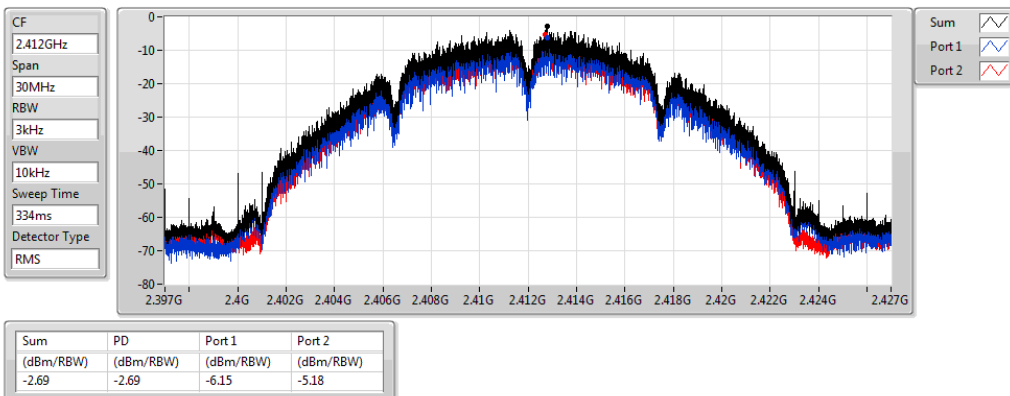
DG = Directional Gain = $10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$;

Ant. No.	Antenna Gain (dBi)
1	5.66
2	6.75
Directional Gain (dBi)	9.23

802.11b_Nss1,(1Mbps)_2TX

PSD

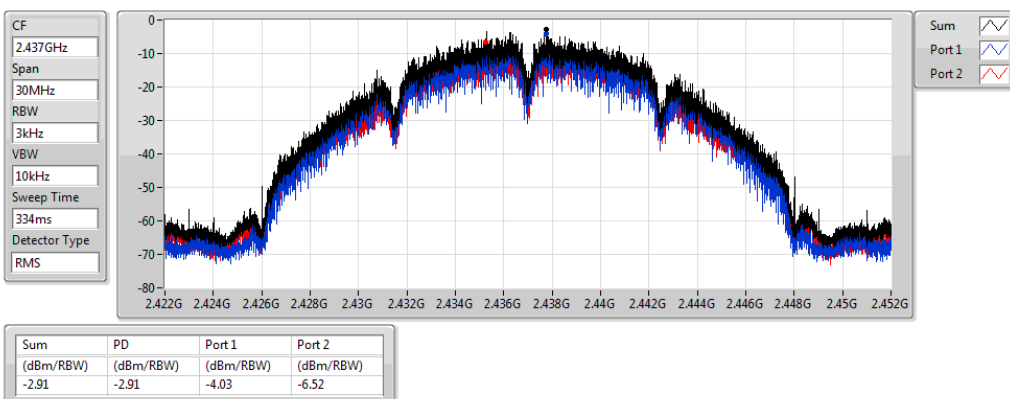
2412MHz



802.11b_Nss1,(1Mbps)_2TX

PSD

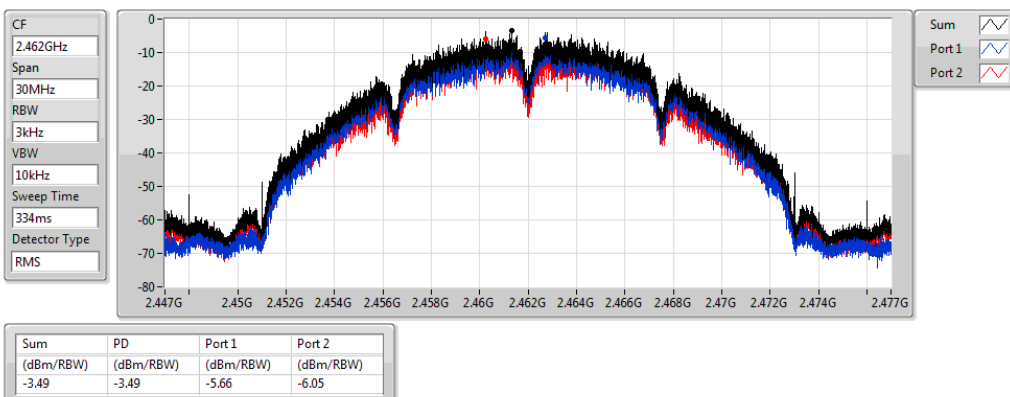
2437MHz



802.11b_Nss1,(1Mbps)_2TX

PSD

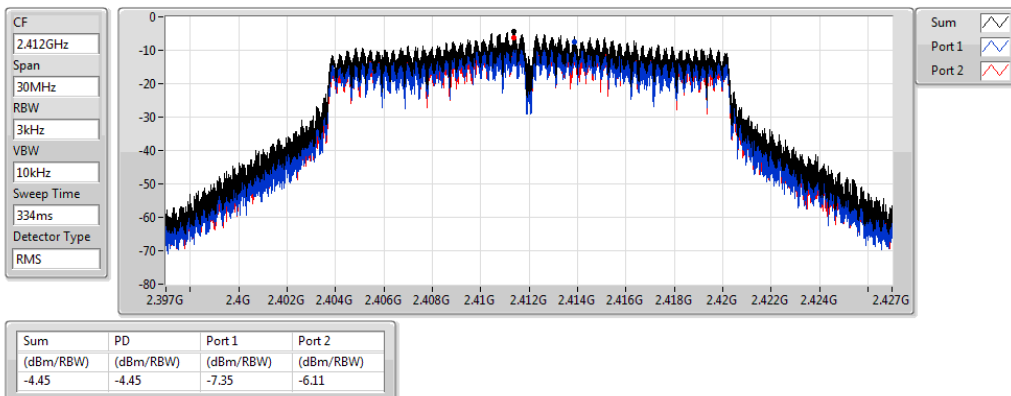
2462MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

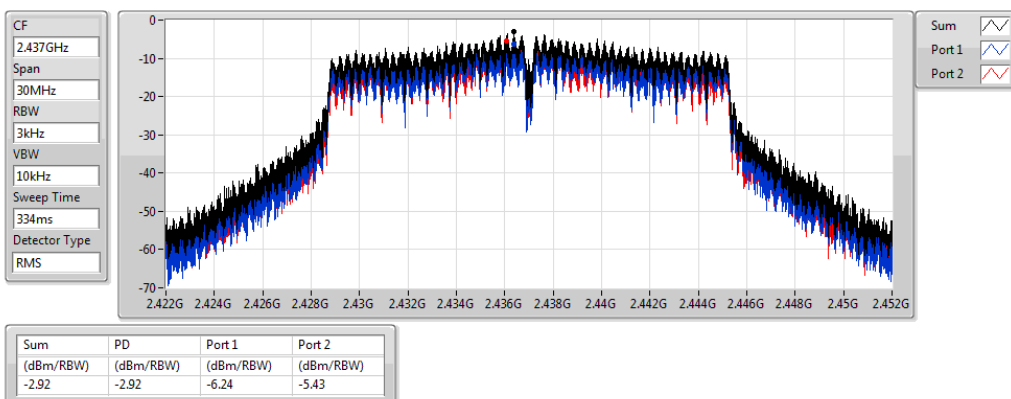
2412MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

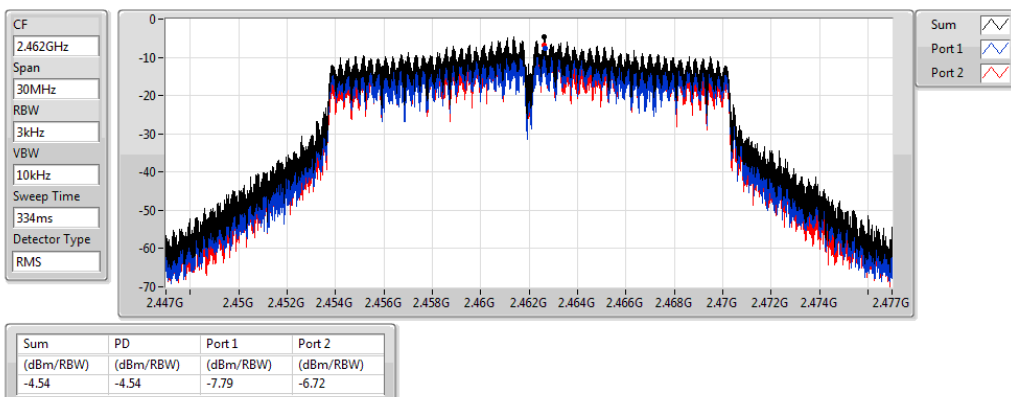
2437MHz



802.11g_Nss1,(6Mbps)_2TX

PSD

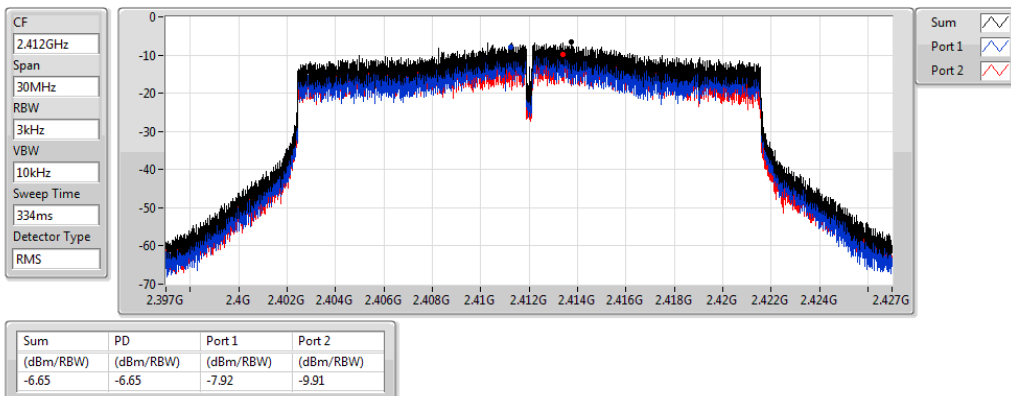
2462MHz



802.11ax HEW20_Nss1,(MCS0)_2TX

PSD

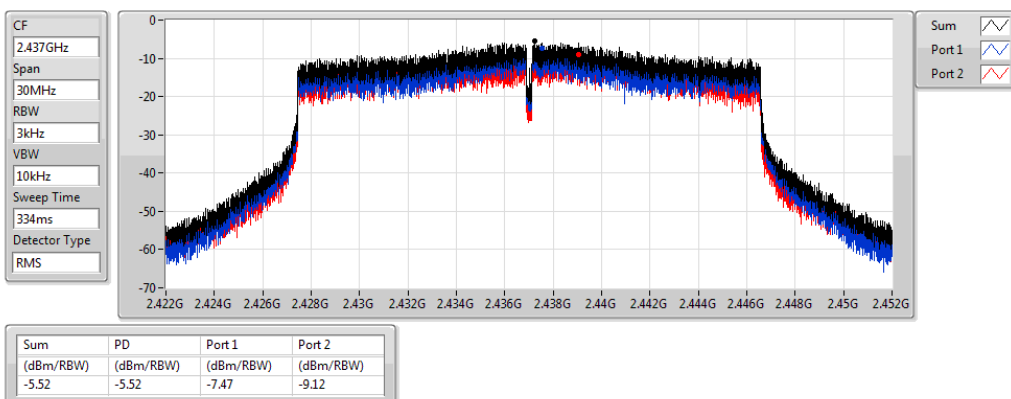
2412MHz



802.11ax HEW20_Nss1,(MCS0)_2TX

PSD

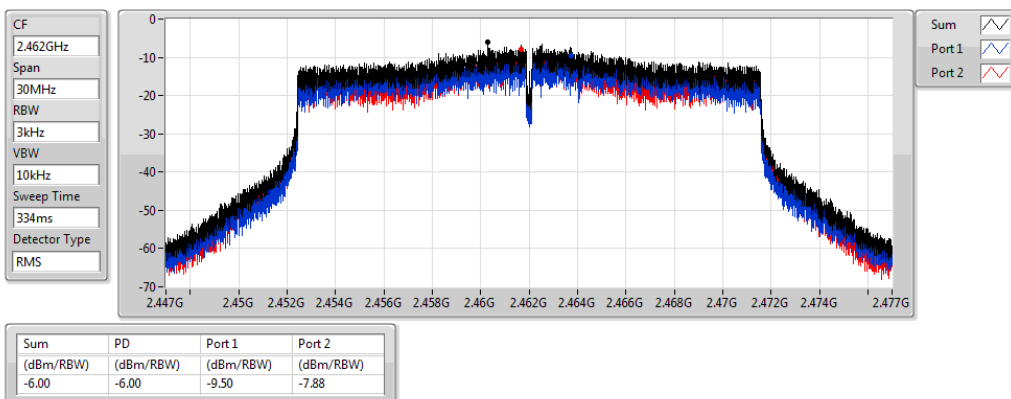
2437MHz



802.11ax HEW20_Nss1,(MCS0)_2TX

PSD

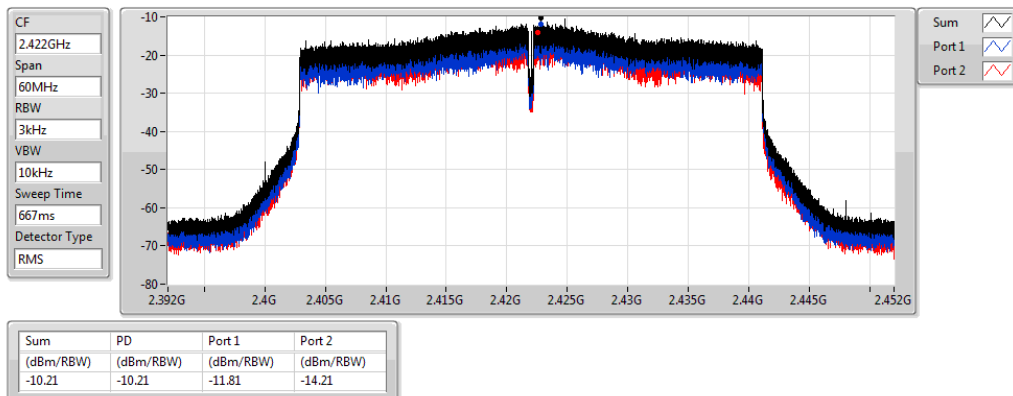
2462MHz



802.11ax HEW40_Nss1,(MCS0)_2TX

PSD

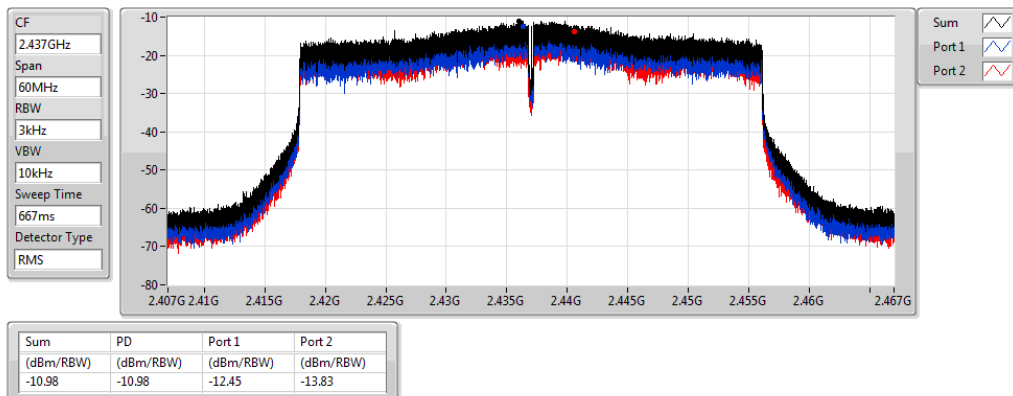
2422MHz



802.11ax HEW40_Nss1,(MCS0)_2TX

PSD

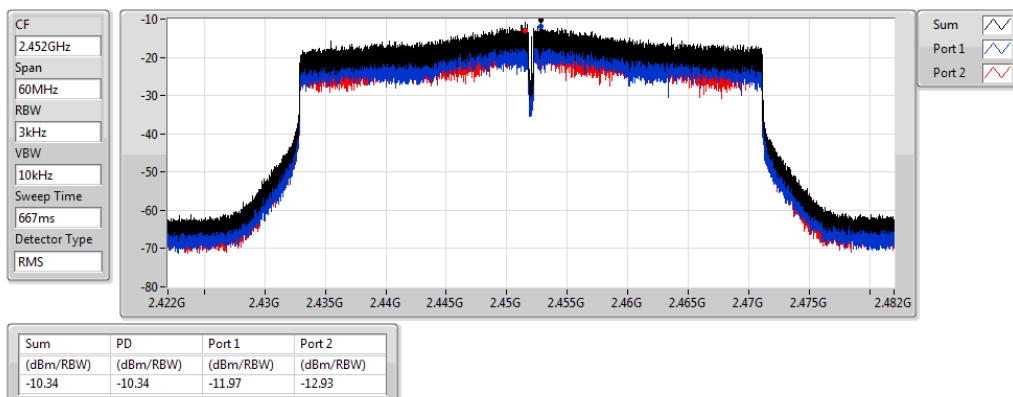
2437MHz



802.11ax HEW40_Nss1,(MCS0)_2TX

PSD

2452MHz





Adapter mode

Unwanted Emissions (Below 1GHz)

Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBuV/m)			

Page No. : 2 of 28



POE mode

Unwanted Emissions (Below 1GHz)

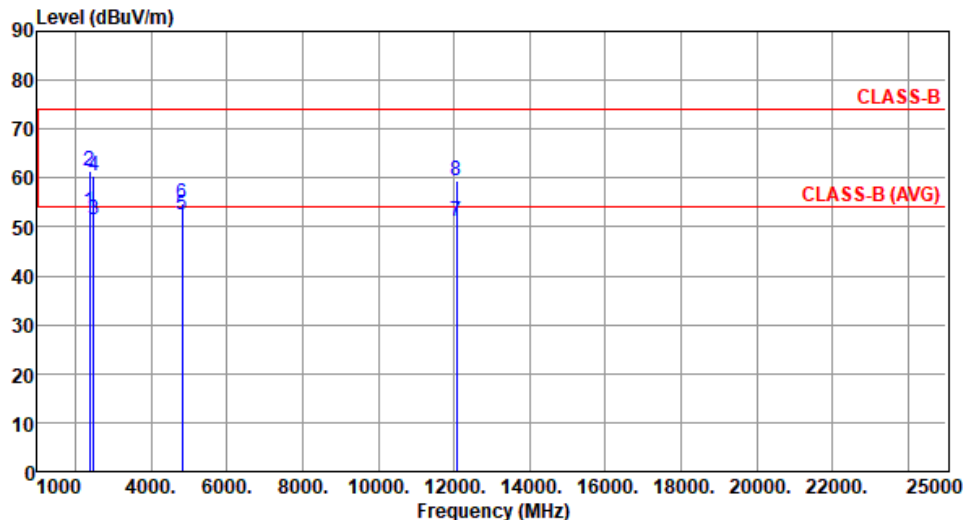
Modulation	11g		Test Freq. (MHz)		2437																																																																							
Polarization	Horizontal																																																																											
Test By :Brad Wu Temperature(°C):24 Humidity(%):63																																																																												
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>36.85</td><td>28.91</td><td>40.00</td><td>-11.09</td><td>38.57</td><td>-9.66</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>90.29</td><td>32.68</td><td>43.50</td><td>-10.82</td><td>47.42</td><td>-14.74</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>99.91</td><td>34.35</td><td>43.50</td><td>-9.15</td><td>47.91</td><td>-13.56</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>149.55</td><td>29.46</td><td>43.50</td><td>-14.04</td><td>38.19</td><td>-8.73</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>199.61</td><td>26.54</td><td>43.50</td><td>-16.96</td><td>38.35</td><td>-11.81</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>374.65</td><td>26.41</td><td>46.00</td><td>-19.59</td><td>32.62</td><td>-6.21</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	36.85	28.91	40.00	-11.09	38.57	-9.66	Peak	---	---	2	90.29	32.68	43.50	-10.82	47.42	-14.74	Peak	---	---	3	99.91	34.35	43.50	-9.15	47.91	-13.56	Peak	---	---	4	149.55	29.46	43.50	-14.04	38.19	-8.73	Peak	---	---	5	199.61	26.54	43.50	-16.96	38.35	-11.81	Peak	---	---	6	374.65	26.41	46.00	-19.59	32.62	-6.21	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	36.85	28.91	40.00	-11.09	38.57	-9.66	Peak	---	---																																																																			
2	90.29	32.68	43.50	-10.82	47.42	-14.74	Peak	---	---																																																																			
3	99.91	34.35	43.50	-9.15	47.91	-13.56	Peak	---	---																																																																			
4	149.55	29.46	43.50	-14.04	38.19	-8.73	Peak	---	---																																																																			
5	199.61	26.54	43.50	-16.96	38.35	-11.81	Peak	---	---																																																																			
6	374.65	26.41	46.00	-19.59	32.62	-6.21	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)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):24 Humidity(%):63			
Level (dBuV/m)			

Unwanted Emission (Above 1GHz) for 11b

Modulation	11b	Test Freq. (MHz)	2412																																																																																																														
Polarization	Horizontal																																																																																																																
Test By :Akun Chung Temperature(°C):23 Humidity(%):66																																																																																																																	
Level (dBuV/m) 90 80 70 60 50 40 30 20 10 0 1 2 3 4 5 6 7 8 1000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000 25000 CLASS-B CLASS-B (AVG) Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></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>2390.00</td><td>41.06</td><td>54.00</td><td>-12.94</td><td>42.55</td><td>-1.49</td><td>Average</td><td>291</td><td>355</td></tr><tr><td>2</td><td>2390.00</td><td>52.14</td><td>74.00</td><td>-21.86</td><td>53.63</td><td>-1.49</td><td>Peak</td><td>291</td><td>355</td></tr><tr><td>3</td><td>2496.00</td><td>45.15</td><td>54.00</td><td>-8.85</td><td>46.71</td><td>-1.56</td><td>Average</td><td>291</td><td>355</td></tr><tr><td>4</td><td>2496.00</td><td>57.24</td><td>74.00</td><td>-16.76</td><td>58.80</td><td>-1.56</td><td>Peak</td><td>291</td><td>355</td></tr><tr><td>5</td><td>4824.00</td><td>45.88</td><td>54.00</td><td>-8.12</td><td>40.61</td><td>5.27</td><td>Average</td><td>321</td><td>56</td></tr><tr><td>6</td><td>4824.00</td><td>50.14</td><td>74.00</td><td>-23.86</td><td>44.87</td><td>5.27</td><td>Peak</td><td>321</td><td>56</td></tr><tr><td>7</td><td>12060.00</td><td>45.36</td><td>54.00</td><td>-8.64</td><td>30.40</td><td>14.96</td><td>Average</td><td>100</td><td>59</td></tr><tr><td>8</td><td>12060.00</td><td>58.41</td><td>74.00</td><td>-15.59</td><td>43.45</td><td>14.96</td><td>Peak</td><td>100</td><td>59</td></tr></table>					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	2390.00	41.06	54.00	-12.94	42.55	-1.49	Average	291	355	2	2390.00	52.14	74.00	-21.86	53.63	-1.49	Peak	291	355	3	2496.00	45.15	54.00	-8.85	46.71	-1.56	Average	291	355	4	2496.00	57.24	74.00	-16.76	58.80	-1.56	Peak	291	355	5	4824.00	45.88	54.00	-8.12	40.61	5.27	Average	321	56	6	4824.00	50.14	74.00	-23.86	44.87	5.27	Peak	321	56	7	12060.00	45.36	54.00	-8.64	30.40	14.96	Average	100	59	8	12060.00	58.41	74.00	-15.59	43.45	14.96	Peak	100	59
	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	2390.00	41.06	54.00	-12.94	42.55	-1.49	Average	291	355																																																																																																								
2	2390.00	52.14	74.00	-21.86	53.63	-1.49	Peak	291	355																																																																																																								
3	2496.00	45.15	54.00	-8.85	46.71	-1.56	Average	291	355																																																																																																								
4	2496.00	57.24	74.00	-16.76	58.80	-1.56	Peak	291	355																																																																																																								
5	4824.00	45.88	54.00	-8.12	40.61	5.27	Average	321	56																																																																																																								
6	4824.00	50.14	74.00	-23.86	44.87	5.27	Peak	321	56																																																																																																								
7	12060.00	45.36	54.00	-8.64	30.40	14.96	Average	100	59																																																																																																								
8	12060.00	58.41	74.00	-15.59	43.45	14.96	Peak	100	59																																																																																																								
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).																																																																																																																	

Modulation	11b	Test Freq. (MHz)	2412																																																																																										
Polarization	Vertical																																																																																												
Test By :Akun Chung Temperature(°C):23 Humidity(%):66																																																																																													
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>2390.00</td><td>52.98</td><td>54.00</td><td>-1.02</td><td>54.47</td><td>-1.49</td><td>Average</td><td>320</td><td>229</td></tr><tr><td>2</td><td>2390.00</td><td>61.38</td><td>74.00</td><td>-12.62</td><td>62.87</td><td>-1.49</td><td>Peak</td><td>320</td><td>229</td></tr><tr><td>3</td><td>2496.00</td><td>51.42</td><td>54.00</td><td>-2.58</td><td>52.98</td><td>-1.56</td><td>Average</td><td>315</td><td>224</td></tr><tr><td>4</td><td>2496.00</td><td>60.45</td><td>74.00</td><td>-13.55</td><td>62.01</td><td>-1.56</td><td>Peak</td><td>315</td><td>224</td></tr><tr><td>5</td><td>4824.00</td><td>52.64</td><td>54.00</td><td>-1.36</td><td>47.37</td><td>5.27</td><td>Average</td><td>302</td><td>175</td></tr><tr><td>6</td><td>4824.00</td><td>54.90</td><td>74.00</td><td>-19.10</td><td>49.63</td><td>5.27</td><td>Peak</td><td>302</td><td>175</td></tr><tr><td>7</td><td>12060.00</td><td>51.09</td><td>54.00</td><td>-2.91</td><td>36.13</td><td>14.96</td><td>Average</td><td>320</td><td>75</td></tr><tr><td>8</td><td>12060.00</td><td>59.28</td><td>74.00</td><td>-14.72</td><td>44.32</td><td>14.96</td><td>Peak</td><td>320</td><td>75</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	2390.00	52.98	54.00	-1.02	54.47	-1.49	Average	320	229	2	2390.00	61.38	74.00	-12.62	62.87	-1.49	Peak	320	229	3	2496.00	51.42	54.00	-2.58	52.98	-1.56	Average	315	224	4	2496.00	60.45	74.00	-13.55	62.01	-1.56	Peak	315	224	5	4824.00	52.64	54.00	-1.36	47.37	5.27	Average	302	175	6	4824.00	54.90	74.00	-19.10	49.63	5.27	Peak	302	175	7	12060.00	51.09	54.00	-2.91	36.13	14.96	Average	320	75	8	12060.00	59.28	74.00	-14.72	44.32	14.96	Peak	320	75
	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	52.98	54.00	-1.02	54.47	-1.49	Average	320	229																																																																																				
2	2390.00	61.38	74.00	-12.62	62.87	-1.49	Peak	320	229																																																																																				
3	2496.00	51.42	54.00	-2.58	52.98	-1.56	Average	315	224																																																																																				
4	2496.00	60.45	74.00	-13.55	62.01	-1.56	Peak	315	224																																																																																				
5	4824.00	52.64	54.00	-1.36	47.37	5.27	Average	302	175																																																																																				
6	4824.00	54.90	74.00	-19.10	49.63	5.27	Peak	302	175																																																																																				
7	12060.00	51.09	54.00	-2.91	36.13	14.96	Average	320	75																																																																																				
8	12060.00	59.28	74.00	-14.72	44.32	14.96	Peak	320	75																																																																																				
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).																																																																																													



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11b	Test Freq. (MHz)	2437																																																																																																																																																						
Polarization	Vertical																																																																																																																																																								
Test By :Akun Chung Temperature(°C):23 Humidity(%):66																																																																																																																																																									
<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>2364.00</td><td>50.07</td><td>54.00</td><td>-3.93</td><td>51.54</td><td>-1.47</td><td>Average</td><td>317</td><td>222</td></tr><tr><td>2</td><td>2364.00</td><td>59.19</td><td>74.00</td><td>-14.81</td><td>60.66</td><td>-1.47</td><td>Peak</td><td>317</td><td>222</td></tr><tr><td>3</td><td>2390.00</td><td>46.27</td><td>54.00</td><td>-7.73</td><td>47.76</td><td>-1.49</td><td>Average</td><td>321</td><td>228</td></tr><tr><td>4</td><td>2390.00</td><td>54.45</td><td>74.00</td><td>-19.55</td><td>55.94</td><td>-1.49</td><td>Peak</td><td>321</td><td>228</td></tr><tr><td>5</td><td>2483.50</td><td>46.30</td><td>54.00</td><td>-7.70</td><td>47.88</td><td>-1.58</td><td>Average</td><td>321</td><td>228</td></tr><tr><td>6</td><td>2483.50</td><td>54.30</td><td>74.00</td><td>-19.70</td><td>55.88</td><td>-1.58</td><td>Peak</td><td>321</td><td>228</td></tr><tr><td>7</td><td>2496.00</td><td>50.31</td><td>54.00</td><td>-3.69</td><td>51.87</td><td>-1.56</td><td>Average</td><td>301</td><td>230</td></tr><tr><td>8</td><td>2496.00</td><td>59.58</td><td>74.00</td><td>-14.42</td><td>61.14</td><td>-1.56</td><td>Peak</td><td>301</td><td>230</td></tr><tr><td>9</td><td>4874.00</td><td>52.77</td><td>54.00</td><td>-1.23</td><td>47.44</td><td>5.33</td><td>Average</td><td>310</td><td>174</td></tr><tr><td>10</td><td>4874.00</td><td>55.47</td><td>74.00</td><td>-18.53</td><td>50.14</td><td>5.33</td><td>Peak</td><td>310</td><td>174</td></tr><tr><td>11</td><td>7311.00</td><td>44.48</td><td>54.00</td><td>-9.52</td><td>33.59</td><td>10.89</td><td>Average</td><td>102</td><td>161</td></tr><tr><td>12</td><td>7311.00</td><td>53.23</td><td>74.00</td><td>-20.77</td><td>42.34</td><td>10.89</td><td>Peak</td><td>102</td><td>161</td></tr><tr><td>13</td><td>12185.00</td><td>52.51</td><td>54.00</td><td>-1.49</td><td>37.62</td><td>14.89</td><td>Average</td><td>321</td><td>76</td></tr><tr><td>14</td><td>12185.00</td><td>60.14</td><td>74.00</td><td>-13.86</td><td>45.25</td><td>14.89</td><td>Peak</td><td>321</td><td>76</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	2364.00	50.07	54.00	-3.93	51.54	-1.47	Average	317	222	2	2364.00	59.19	74.00	-14.81	60.66	-1.47	Peak	317	222	3	2390.00	46.27	54.00	-7.73	47.76	-1.49	Average	321	228	4	2390.00	54.45	74.00	-19.55	55.94	-1.49	Peak	321	228	5	2483.50	46.30	54.00	-7.70	47.88	-1.58	Average	321	228	6	2483.50	54.30	74.00	-19.70	55.88	-1.58	Peak	321	228	7	2496.00	50.31	54.00	-3.69	51.87	-1.56	Average	301	230	8	2496.00	59.58	74.00	-14.42	61.14	-1.56	Peak	301	230	9	4874.00	52.77	54.00	-1.23	47.44	5.33	Average	310	174	10	4874.00	55.47	74.00	-18.53	50.14	5.33	Peak	310	174	11	7311.00	44.48	54.00	-9.52	33.59	10.89	Average	102	161	12	7311.00	53.23	74.00	-20.77	42.34	10.89	Peak	102	161	13	12185.00	52.51	54.00	-1.49	37.62	14.89	Average	321	76	14	12185.00	60.14	74.00	-13.86	45.25	14.89	Peak	321	76
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																																																																																																
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3	2390.00	46.27	54.00	-7.73	47.76	-1.49	Average	321	228																																																																																																																																																
4	2390.00	54.45	74.00	-19.55	55.94	-1.49	Peak	321	228																																																																																																																																																
5	2483.50	46.30	54.00	-7.70	47.88	-1.58	Average	321	228																																																																																																																																																
6	2483.50	54.30	74.00	-19.70	55.88	-1.58	Peak	321	228																																																																																																																																																
7	2496.00	50.31	54.00	-3.69	51.87	-1.56	Average	301	230																																																																																																																																																
8	2496.00	59.58	74.00	-14.42	61.14	-1.56	Peak	301	230																																																																																																																																																
9	4874.00	52.77	54.00	-1.23	47.44	5.33	Average	310	174																																																																																																																																																
10	4874.00	55.47	74.00	-18.53	50.14	5.33	Peak	310	174																																																																																																																																																
11	7311.00	44.48	54.00	-9.52	33.59	10.89	Average	102	161																																																																																																																																																
12	7311.00	53.23	74.00	-20.77	42.34	10.89	Peak	102	161																																																																																																																																																
13	12185.00	52.51	54.00	-1.49	37.62	14.89	Average	321	76																																																																																																																																																
14	12185.00	60.14	74.00	-13.86	45.25	14.89	Peak	321	76																																																																																																																																																
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).																																																																																																																																																									



Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11b	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m) </			

Unwanted Emissions (Above 1GHz) for 11g

Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m)			



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			

Unwanted Emissions (Above 1GHz) for ax HE20

Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE20	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m) <			



Modulation	ax HE20	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE20	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 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):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m)			



Modulation	ax HE40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m) </			



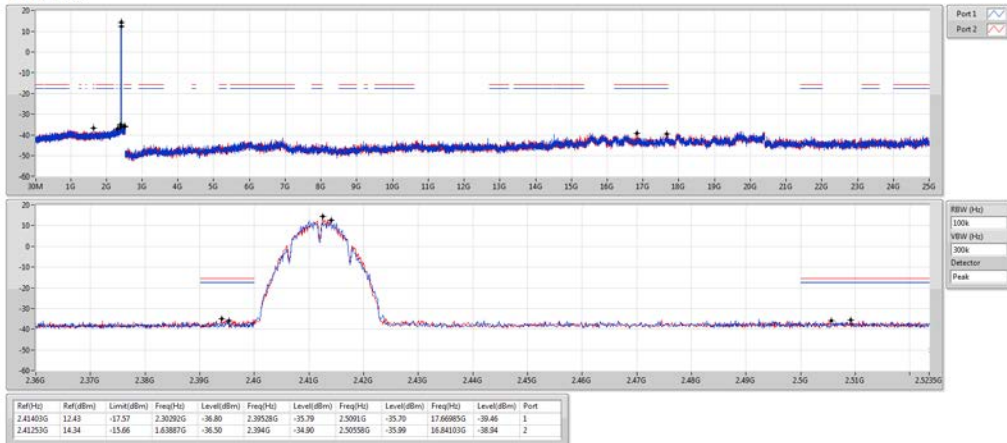
Modulation	ax HE40	Test Freq. (MHz)	2452
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	ax HE40	Test Freq. (MHz)	2452
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			

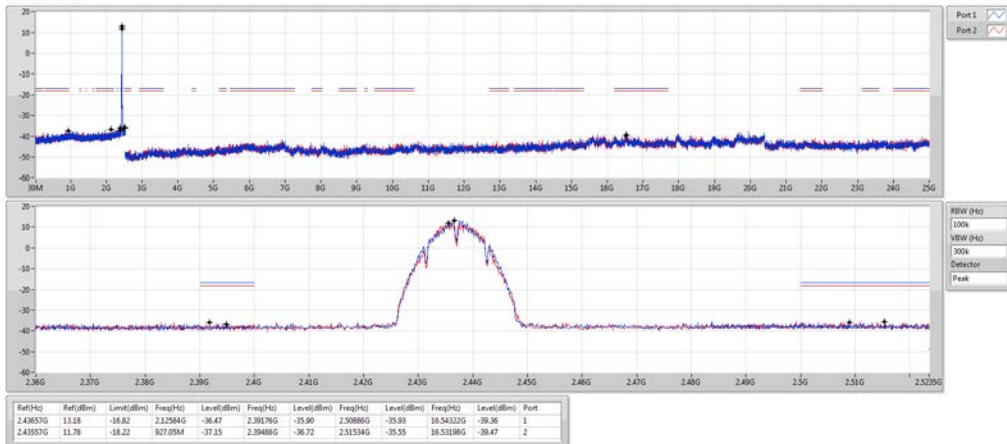
802.11b_Nss1,(1Mbps)_2TX
2412MHz

CSE NdB



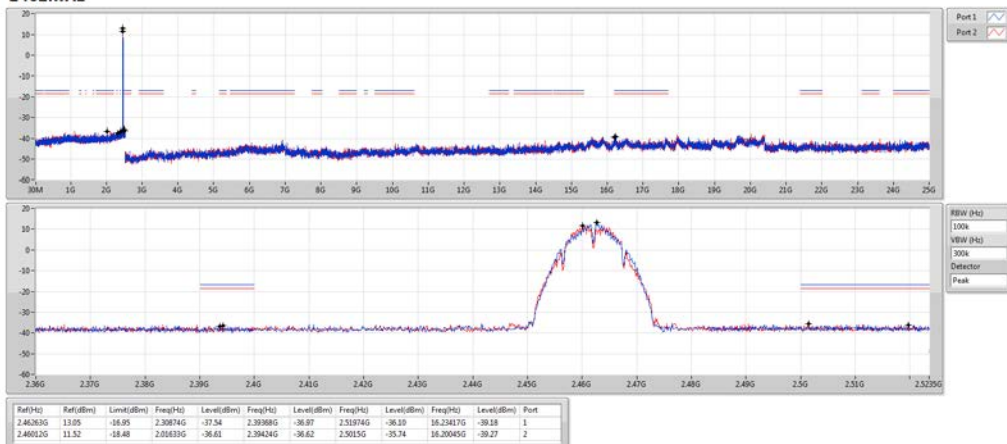
802.11b_Nss1,(1Mbps)_2TX
2437MHz

CSE NdB



802.11b_Nss1,(1Mbps)_2TX
2462MHz

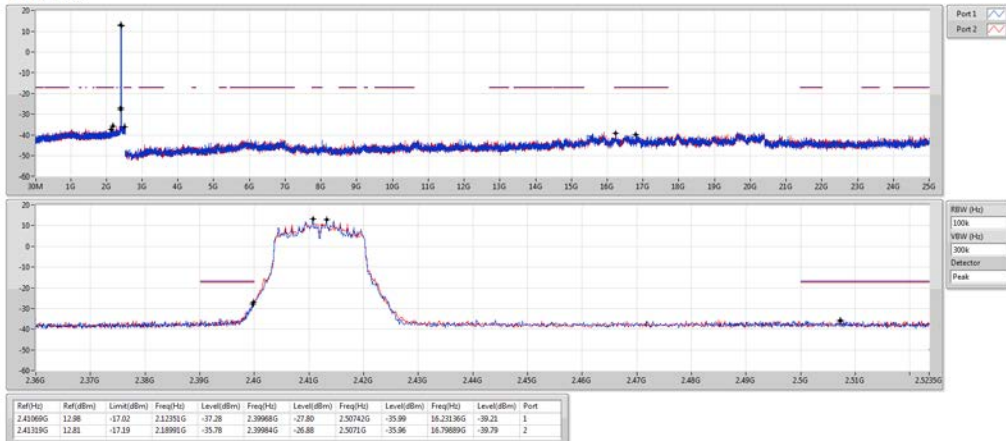
CSE NdB



802.11g_Nss1,(6Mbps)_2TX

CSE NdB

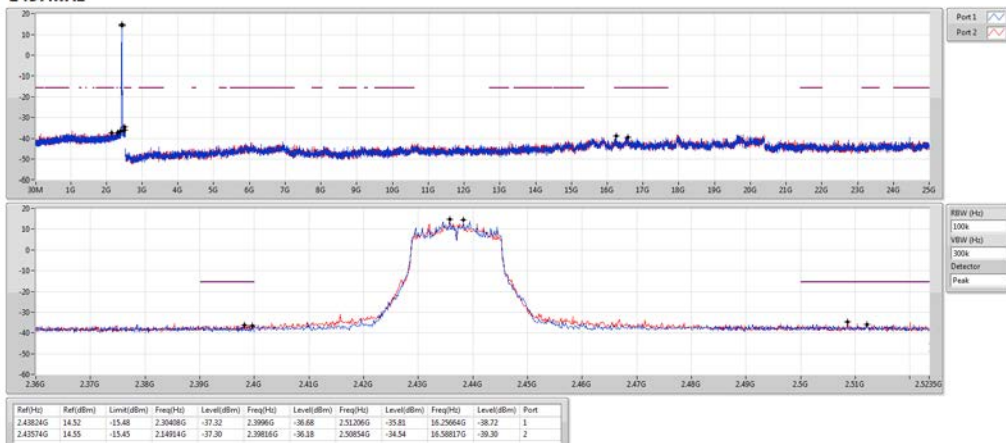
2412MHz



802.11g_Nss1,(6Mbps)_2TX

CSE NdB

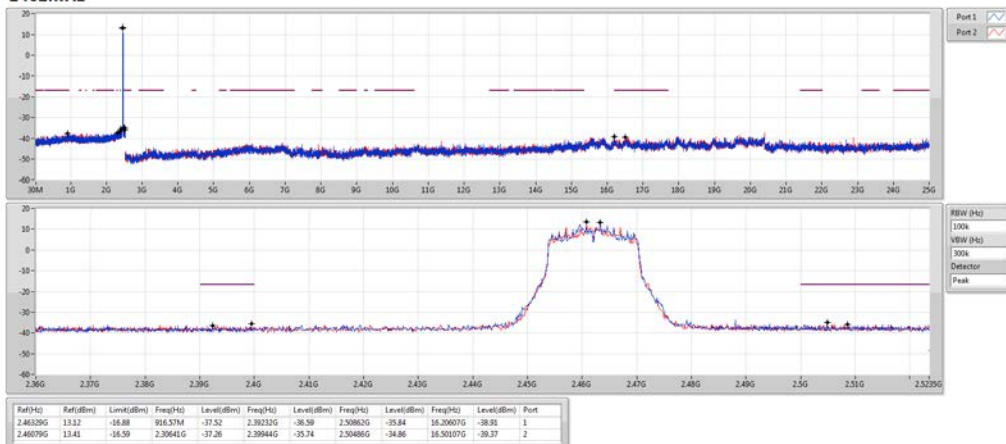
2437MHz



802.11g_Nss1,(6Mbps)_2TX

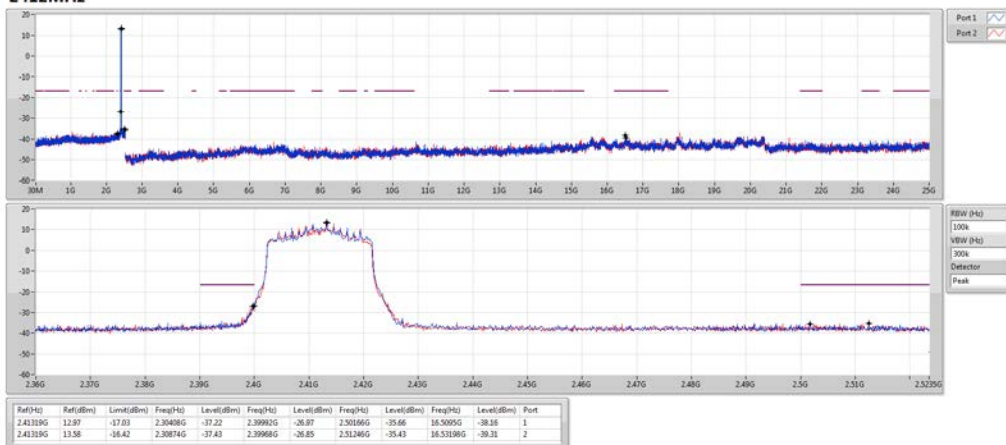
CSE NdB

2462MHz



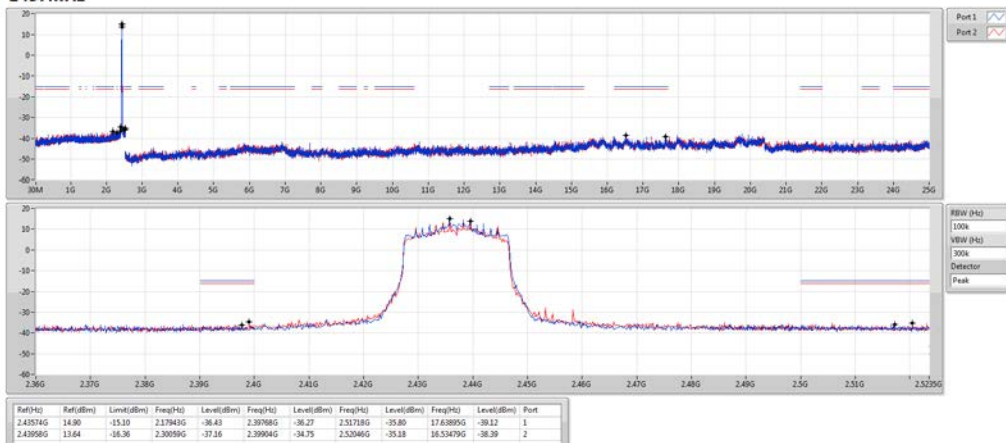
802.11ax HEW20_Nss1,(MCS0)_2TX
2412MHz

CSE NdB



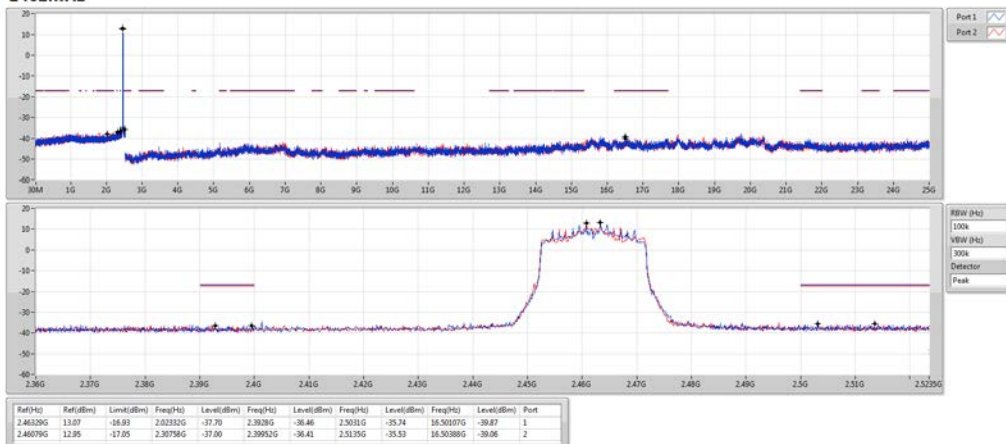
802.11ax HEW20_Nss1,(MCS0)_2TX
2437MHz

CSE NdB



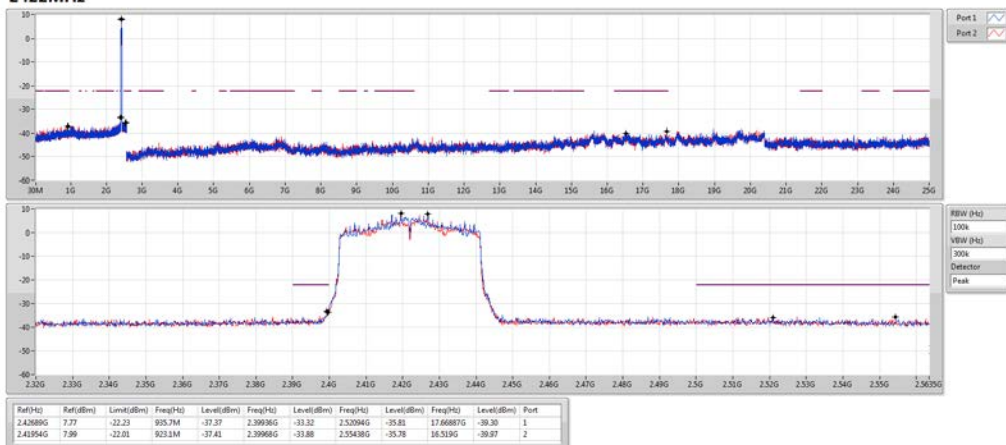
802.11ax HEW20_Nss1,(MCS0)_2TX
2462MHz

CSE NdB



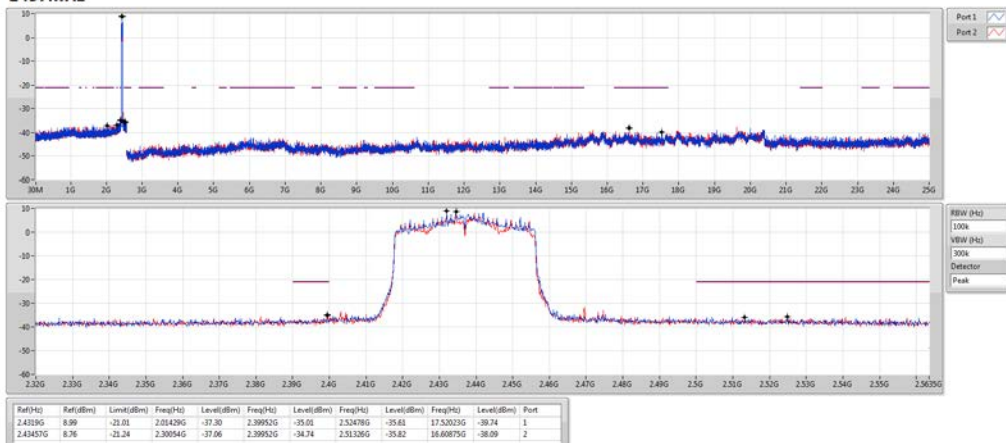
802.11ax HEW40_Nss1,(MCS0)_2TX
2422MHz

CSE NdB



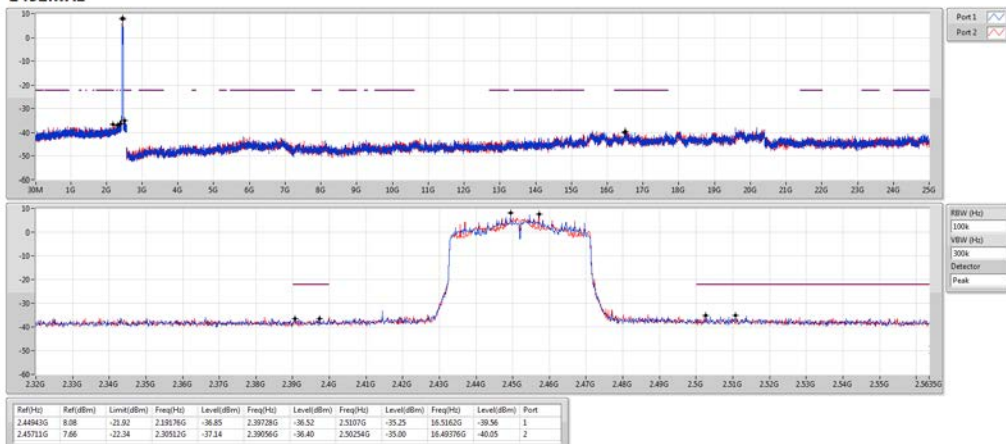
802.11ax HEW40_Nss1,(MCS0)_2TX
2437MHz

CSE NdB



802.11ax HEW40_Nss1,(MCS0)_2TX
2452MHz

CSE NdB





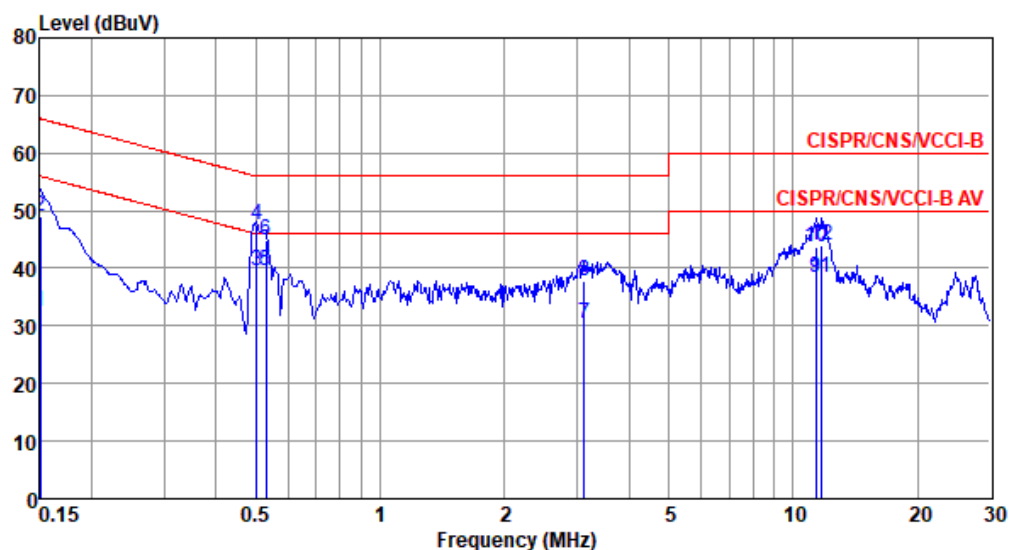
POE mode

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

Test by : Joe Liao

Temperature: 20°C

Humidity: 60%



	Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark
	MHz	dBuV	Line	Limit	Level		loss		
			dBuV	dB	dBuV	dB	dB	dB	
1	0.150	32.53	56.00	-23.47	22.85	9.60	0.08	0.00	Average
2	0.150	49.01	66.00	-16.99	39.33	9.60	0.08	0.00	QP
3*	0.502	39.67	46.00	-6.33	29.97	9.60	0.10	0.00	Average
4	0.502	47.45	56.00	-8.55	37.75	9.60	0.10	0.00	QP
5	0.529	39.61	46.00	-6.39	29.91	9.60	0.10	0.00	Average
6	0.529	44.77	56.00	-11.23	35.07	9.60	0.10	0.00	QP
7	3.123	30.40	46.00	-15.60	20.56	9.63	0.21	0.00	Average
8	3.123	37.92	56.00	-18.08	28.08	9.63	0.21	0.00	QP
9	11.377	38.35	50.00	-11.65	28.23	9.64	0.48	0.00	Average
10	11.377	43.63	60.00	-16.37	33.51	9.64	0.48	0.00	QP
11	11.683	38.50	50.00	-11.50	28.37	9.64	0.49	0.00	Average
12	11.683	43.84	60.00	-16.16	33.71	9.64	0.49	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).

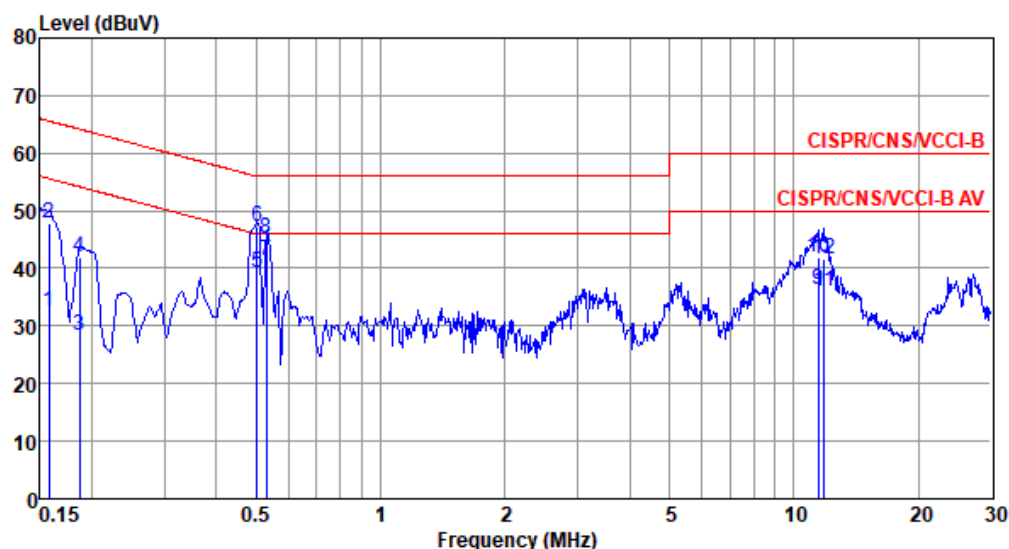


Modulation Mode	11g	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 20°C

Humidity: 60%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.157	32.56	55.60	-23.04	22.89	9.59	0.08	0.00	Average
2	0.157	47.88	65.60	-17.72	38.21	9.59	0.08	0.00	QP
3	0.186	28.23	54.20	-25.97	18.56	9.59	0.08	0.00	Average
4	0.186	41.93	64.20	-22.27	32.26	9.59	0.08	0.00	QP
5	0.502	39.40	46.00	-6.60	29.72	9.58	0.10	0.00	Average
6	0.502	47.28	56.00	-8.72	37.60	9.58	0.10	0.00	QP
7*	0.529	41.21	46.00	-4.79	31.53	9.58	0.10	0.00	Average
8	0.529	45.24	56.00	-10.76	35.56	9.58	0.10	0.00	QP
9	11.438	36.37	50.00	-13.63	26.22	9.66	0.49	0.00	Average
10	11.438	42.01	60.00	-17.99	31.86	9.66	0.49	0.00	QP
11	11.870	36.08	50.00	-13.92	25.92	9.66	0.50	0.00	Average
12	11.870	41.66	60.00	-18.34	31.50	9.66	0.50	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).



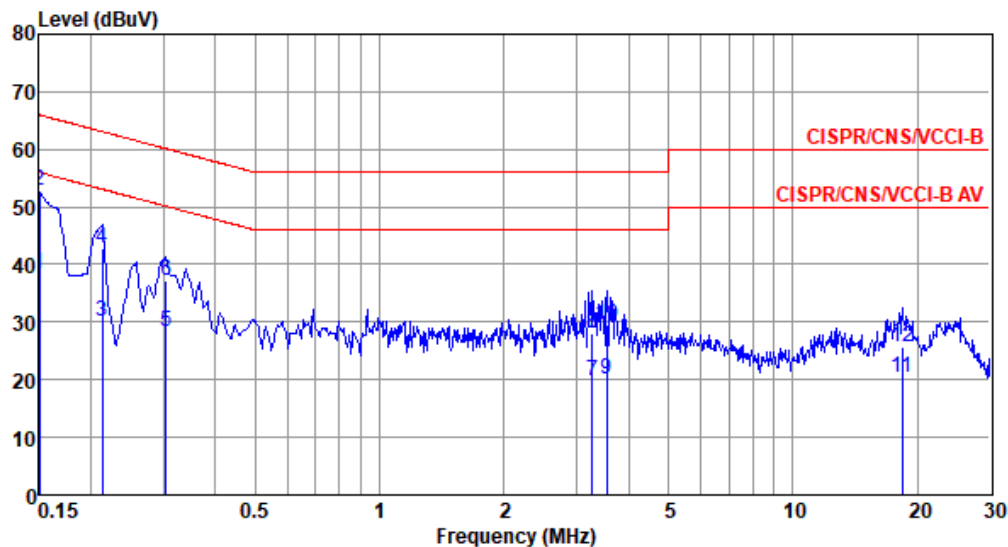
Adapter mode

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

Test by : Joe Liao

Temperature: 20°C

Humidity: 60%



	Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark
	MHz	dBuV	Line	Limit	Level	dB	loss	dB	
			dBuV	dB	dBuV		dB		
1	0.150	38.27	56.00	-17.73	28.39	9.60	0.08	0.20	Average
2*	0.150	52.73	66.00	-13.27	42.85	9.60	0.08	0.20	QP
3	0.213	30.24	53.10	-22.86	20.32	9.61	0.08	0.23	Average
4	0.213	42.83	63.10	-20.27	32.91	9.61	0.08	0.23	QP
5	0.303	28.33	50.15	-21.82	18.35	9.60	0.08	0.30	Average
6	0.303	37.24	60.15	-22.91	27.26	9.60	0.08	0.30	QP
7	3.276	19.70	46.00	-26.30	9.45	9.63	0.21	0.41	Average
8	3.276	27.95	56.00	-28.05	17.70	9.63	0.21	0.41	QP
9	3.547	20.08	46.00	-25.92	9.83	9.63	0.21	0.41	Average
10	3.547	29.51	56.00	-26.49	19.26	9.63	0.21	0.41	QP
11	18.426	20.45	50.00	-29.55	9.61	9.60	0.63	0.61	Average
12	18.426	25.72	60.00	-34.28	14.88	9.60	0.63	0.61	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).

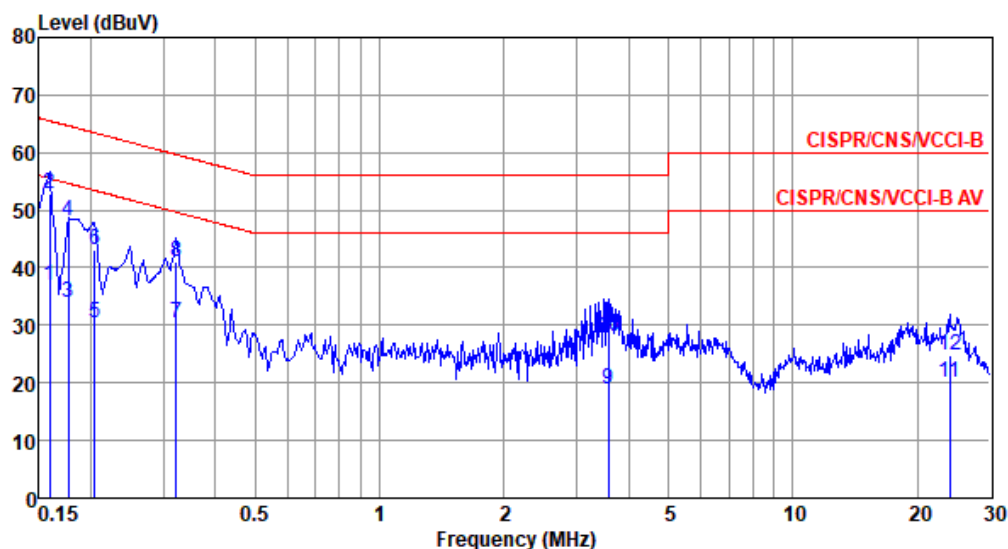


Modulation Mode	11g	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 20°C

Humidity: 60%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.159	36.95	55.52	-18.57	27.12	9.59	0.08	0.16	Average
2*	0.159	52.80	65.52	-12.72	42.97	9.59	0.08	0.16	QP
3	0.177	33.83	54.64	-20.81	23.99	9.59	0.08	0.17	Average
4	0.177	48.11	64.64	-16.53	38.27	9.59	0.08	0.17	QP
5	0.204	30.39	53.45	-23.06	20.54	9.59	0.08	0.18	Average
6	0.204	43.06	63.45	-20.39	33.21	9.59	0.08	0.18	QP
7	0.322	30.34	49.66	-19.32	20.49	9.58	0.08	0.19	Average
8	0.322	41.17	59.66	-18.49	31.32	9.58	0.08	0.19	QP
9	3.584	19.03	46.00	-26.97	8.88	9.61	0.21	0.33	Average
10	3.584	28.14	56.00	-27.86	17.99	9.61	0.21	0.33	QP
11	24.015	19.99	50.00	-30.01	9.14	9.66	0.68	0.51	Average
12	24.015	24.94	60.00	-35.06	14.09	9.66	0.68	0.51	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).